

## IDH / ICO / DEG / AFCA / 4C Association workshop on 'Access to inputs for East-African coffee farmers – What role can finance play?'

### **Smallholder Financing Case Studies**

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### **Executive Summary**

This report has been prepared as a pre-read and facilitation document for the IDH, ICO, DEG, AFCA, and 4C Association workshop on "Access to Inputs for East-African coffee farmers – What role can finance play?" on the 10<sup>th</sup> February 2015 in Nairobi, Kenya. The objectives of the workshop include the following:

- Gain insight into the risk perspective and mitigation measures on input finance facilities from input providers, farmers, traders and financial institutions,
- Share concrete experiences of input provision through finance facilities and
- Jointly develop solutions and new partnerships to improve access to finance at origin.

In that spirit, this document includes a brief overview of the East African coffee market and a series of case studies that illustrate existing approaches to managing risk and increasing access to finance for smallholder farmers, with a particular focus on access to inputs.

One of the major bottlenecks towards a sustainable resurgence of a more productive African coffee sector is the limited access to loans and other financial services for coffee farmers to boost productivity and income levels. From a farmer's perspective, there is significant unmet demand for pre-harvest finance for inputs and equipment as a crucial prerequisite to increase production. However, farmers often lack awareness and knowledge of financial products, if available at all, or are discouraged by high interest rates and additional administrative costs. Furthermore, many farmers are not members of aggregated producer organizations or cooperatives that could facilitate their access to finance.

On the supply side, constraints among financial institutions include lack of expertise to design appropriate products for farmers or lack of distribution channels that can reach farmers, particularly those located in rural areas far from urban branches. This is compounded by the fact that farmers often lack traditional forms of collateral or do not have sufficient management or records of their farm enterprise. Finally, enabling infrastructure is insufficient in many countries that lack credit bureaus or have regulation or policy that does not enable lending.

The few financial institutions that have managed to overcome constraints have done so through a mix of product, distribution, and collateral customization that serves smallholders effectively. For example:

- To improve farmers' ability to pay on time, some banks have collaborated with local agriculture experts to design loans with flexible repayment terms that are linked to actual crop cycles.
- From a distribution perspective, mobile technology has enabled roaming agents to distribute finance to rural customers where they live and work, collecting information while reducing transaction costs.
- Farmer organizations and cooperatives have been used a central point for loan distribution and collection.
- The use of group lending, warehouse receipts, or equipment leasing allows banks to offer financing to farmers without traditional hard assets as collateral.
- To manage risk effectively, innovative banks recognize the importance of having intimate knowledge of value chains and buyer relationships in order to gauge future cash flows and improve credit assessments of smallholders.

Apart from financial service providers, whether commercially or socially driven, and the farmers or farmers' associations, there are a number of other stakeholders with a commercial or political interest to bridge the financing gap:

- Coffee trade and industry is in want of stable and increasing supplies that meet certain quality levels, possibly complying with sustainability standards. Pre-finance of crops or channeling of credit or credit guarantees are viable intervention options, yet the risk of side-selling and limited loyalty tends to be too high in the absence of viable monitoring and control mechanisms.
- Input and other transaction service providers need to sustain or extend their markets. The provision of inputs to farmer associations against post-harvest payment plus interest is being practiced, yet often the risk of defaulting is high.
- Governments have an interest in a viable business case for farmers, poverty reduction, a thriving economy and increased export earnings. Regulatory bodies can play an important role in establishing favorable regulations for the agricultural finance market in general. Reform of land ownership titles or the introduction of farmer registration systems can be particularly helpful.

Measures of risk mitigation are crucial both for loan lenders and borrowers, with reciprocally positive effects. Measures to increase efficiency, risk sharing, and information flows include:

- Aggregation of farmers into (registered) farmer organizations with an efficient organizational structure coupled with capacity building in financial literacy, entrepreneurship and record-keeping;
- Value chain financing arrangements between producers, buyers, input suppliers, and/or financial service providers, including the use of formal or informal relationships or purchase agreements as a source of risk reduction;
- Risk sharing through credit guarantee, insurance, and subsidization schemes;
- Introducing transparency through the use of monitoring and pre-assessment mechanisms;
- Implementation of sustainability standards that guarantee certain levels of farmers aggregation, internal management, monitoring (bi-directional information flow), and improve market access and quality; these standards often lead to a price premium for farmers, which can help mitigate side selling;
- Business plan counselling and financial capacity building information sessions, trainings and awareness campaigns on financial services markets for farmers and their associations.

The remainder of this document includes a brief overview of the East African coffee market followed by a series of sample case studies that illustrate many of the concepts introduced above. These cases serve as the foundation for further discussion and collaboration during the 10<sup>th</sup> of February workshop in Nairobi in which participants will be led through a series of team-based structured exercises designed to promote creative collaboration. Over the course of the workshop, participants will explore hypotheses, generate fresh ideas, and prioritize solutions and activities for further collaboration. This will all be with an eye on driving meaningful change in the East African coffee market with a healthy respect for what's known and what's feasible.

### East African Coffee Market Overview

Sources: Dalberg assessment of the East African coffee market on behalf of KfW, Neumann Kaffee Gruppe, and Hanns R. Neumann Stiftung<sup>1</sup>; and IDH, "Ethiopia – A Business Case for Sustainable Coffee Production," January 2014

**Coffee is an important export commodity and source of livelihoods for a large proportion of the population in many African countries**. While, according to estimates, Africa is home to approximately half of the world's coffee farmers, its global share of coffee production and exports is below 12%. This discrepancy is owed to the fact that the majority of African coffee farmers are smallholders cultivating less than 0.5 hectares, coupled with extremely low productivity levels, in many countries averaging even less than 400 kg per hectare. Average smallholder yields in the region are 5-10x below the levels of coffee estates in the region and global benchmarks.

Reasons for the low productivity are manifold and include over-aged, unproductive trees, limited adoption of efficient agronomic practices, lack of farmer organization, of (access to) agronomic support, and of (affordable) credit. Low productivity propels poverty, limits the profitability of coffee farming, and hence prevents farmers from taking on a more entrepreneurial approach. Compared to more productive systems, low productivity considerably restricts the cost-efficiency of external support services to improve cup quality and hence market access and farm income, when related to coffee volume 'output'. As a self-propelling dilemma, low productivity thus weakens the business case of the coffee farmer itself as well as of intra-supply-chain support, which in Africa remains grossly dependent on external funding.

**Equally significant, however, is the fact that the financing needs of coffee smallholders and cooperatives are greatly under-served by local financial institutions** creating an important bottleneck to improving smallholder productivity and coffee quality. Limited access to finance to procure productivity-enhancing inputs and manage cash flows at the farm level, as well as working capital and equipment needs at the cooperative level, significantly constrains production potential.

The fluctuations in the global coffee market have a large effect on local coffee markets in East Africa, including price and prospects of individual smallholders. Like many commodity markets, the coffee market is characterized by large price fluctuations, making it difficult for producers to predict their income and rationalize investments in productivity. After several years of sustained increases, global coffee prices fell substantially in 2012 and 2013, particularly for Arabica. After a recovery in early 2014, again fell at the end of the year. The current low price environment makes it difficult for coffee farmers to justify investments in productivity in East Africa and beyond, a reality that any coffee financing intervention needs to contend with.

<sup>&</sup>lt;sup>1</sup> An assessment of the market opportunity for a coffee smallholder-focused financing intervention in Kenya, Tanzania and Uganda was conducted in the fall of 2013. This assessment included analyses of market data, close collaboration with Neumann Kaffee Gruppe and Hanns R. Neumann Stiftung stakeholders, and in-country interviews of industry participants. For each country, the assessment included analyses of (i) the nature and estimated magnitude of demand for finance among coffee smallholders; (ii) the supply of finance provided by local financial institutions; (iii) market structure, constraints and complications in addressing unmet demand for finance.

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	Tanzania	Kenya	Uganda	Ethiopia
Marketing system	Auction	Auction	Open Market	Commodity Exchange (ECX)
Coffee price trend <sup>1</sup>	70,000 MT	50,000 MT	190,000 MT	500,000 MT
Coffee production trend	Stable	Long-run decline	Stable	Growing
Percentage of production that is smallholder-produced	~95%	~56%	~90%	~90%
Average smallholder yield <sup>2</sup>	250 kg/ha	300 kg/ha	548 kg/ha	300 kg/ha
Bankability of cooperatives	$\bullet$	•	$\odot$	
Percentage of smallholder coffee moving through coops	~50%	100%	~5%3	7%
Prevalence of side-selling	High	Low	High	Low
Estimated smallholder financing gap <sup>4</sup>	~\$139M (51%)	~\$77M (43%)	~\$75M (43%)	

Note: (1) MT = metric ton (1,000 kg); (2) The yield differential is due to the fact that Arabica is more commonly produced in Tanzania and Kenya, while Robusta is more commonly produced in Uganda; (3) Highly preliminary estimate based on the assumption that each cooperative has 500 members. Discussions with HRNS indicate that roughly 20% of cooperative members sell ~30% of their product into the cooperative; (4) Conservative estimate based on team assumptions.

**Kenya.** The level of development of coffee cooperatives is relatively high in Kenya compared to Uganda and Tanzania, and nearly all coffee produced by smallholder farmers goes through cooperatives to the national auction due to historically strict regulations in the coffee sector. Within the coffee value chain, approximately 450 cooperatives are responsible for aggregating coffee, and they must work with a marketing agent to bring this coffee to market. The unmet demand for smallholder coffee financing in Kenya is estimated to amount to approximately \$77 million, or 43 percent of total demand. The major barriers to coffee financing through value chain partners in Kenya include the structure of the auction system, which prevents downstream actors like exporters from building relationships with producers, increased regulatory uncertainty following the adoption of a new national constitution, and a limit on the duration of marketing agent contracts that can secure longer-term financing to cooperatives.

**Tanzania.** Cooperatives in Tanzania are not as strong as their counterparts in Kenya, in that most do not function as effective marketing organizations for their member-farmers. One important consequence, and a reinforcing driver, of weak cooperatives in Tanzania is that centralized wet milling operations are significantly under-developed; instead, most smallholders conduct primary processing through sub-scale "backyard" wet mills that reduce quality, and sell the resulting parchment to private traders throughout the country. The unmet demand for smallholder coffee financing in Tanzania is estimated at approximately \$139 million, or 51 percent of total demand. Some of the major constraints to coffee financing through value chain partners in Tanzania include lack of financial and management capacity of cooperatives, the structure of the auction system, which, as in Kenya, prevents downstream actors like exporters from building relationships with producers, and the prevalence of side-selling to private traders, which makes it difficult to secure financing with future production.

**Uganda.** The coffee sector in Uganda is distinct from Kenya and Tanzania in that it is comparatively lightly regulated ("liberalized"), with no national auction system. While this means that direct sales relationships between exporters and producer groups are possible, the most common way that coffee gets to market is through a network of over 6,000 small, medium, and large private traders who buy coffee at the farm-gate and then sell on to exporters in Kampala. The state of development of coffee producer groups in Uganda is very poor, with a limited number of effectively functioning cooperatives and small volumes of coffee moving through those that do exist—a key bottleneck to improving quality and productivity at the smallholder level. In addition, most coffee is dry processed, despite the fact that wet-processed Robusta can secure premiums of up to 30 percent for farmers. The smallholder coffee financing gap in Uganda is estimated to be approximately \$75 million, or 43 percent of total demand. The primary constraints to coffee financing through value chain partners in Uganda include the limited number of viable producer groups that can act as aggregation points for marketing and financing (favoring a direct-to-farmer microfinance approach), and a significant risk of side-selling for financing that is secured by an offtake agreement.

**Ethiopia.** Coffee exports from Ethiopia are the highest in East Africa, and Ethiopia has recently surpassed Brazil as the world's lowest cost producer of Arabica coffee. Despite optimal growing conditions, Ethiopia has some of the lowest coffee yields in the world. Furthermore, high costs of doing business mean that Ethiopia's cost differential between the farm gate and export is one of the highest in the world, which leads to farmers receiving a low share of the export price. Current regulations only allow large plantations and cooperatives to participate in sustainability and certification initiatives. They represent 10% of exports, but only 3% is currently certified. The remaining 90% of exports must go through the Ethiopia Commodity Exchange (ECX), which differentiates commodity grades but not sustainability practices. Overcoming this limitation has been identified as a key priority by the Government of Ethiopia. By boosting yields and creating supply chain efficiencies, Ethiopia has the potential to match the current exports of Colombia in the next ten years.

**Summary.** While the magnitude of the financing gap in each country demonstrates that incremental financing to coffee smallholders is needed in all three countries, barriers to financing exist in each. These challenges include, but are not limited to: the presence of an auction-based marketing system in Kenya and Tanzania that prevents downstream companies like exporters from developing relationships with upstream producers; a dearth of "bankable" producer groups; overall regulatory uncertainty in the coffee sector, particularly in Kenya and somewhat in Tanzania; and significant risk of side-selling in Uganda and Tanzania. In addition, industry stakeholders emphasize that "financing alone is not enough" to achieve improved productivity and efficiency of coffee smallholder production. Any financing effort will need to be complemented with technical assistance to, among other aims, foster good agricultural practices and strengthen cooperatives over time.



## Case Study: CFC and ICO – Guarantee Schemes to Improve Farmers' Access to Credit

Source: World Bank/ICO compendium of case studies



The project was designed to assist cooperatives in accessing finance in a sustainable way, including working capital loans to enable the purchase of coffee cherries and long-term loans for investment in equipment and investment in infrastructure. This is turn would enable cooperatives to improve coffee quality and raise the incomes of their coffee growing members.<sup>2</sup> The mechanism for the expansion of finance was the

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provision of a guarantee service for local banks that were lending to the sector. The project was implemented in Ethiopia and Rwanda.

The project derived from a three-year pilot project on improving coffee quality in East and Central Africa through enhanced primary processing practices. The original project aimed to demonstrate good practices for post-harvest processing of coffee, enabling farmers to produce higher quality coffee, generate higher income, and improve their livelihoods. To help achieve these objectives, equipment for small-scale coffee washing stations – such as pulping machines and raised drying beds – was delivered to participating farmers. Technical assistance was provided to build the capacity of farmers' organizations. At the conclusion of the pilot in 2008, stakeholders felt a new initiative could consolidate the positive results achieved and sustain the practices developed in the initial project. Specifically, the new project would focus on enabling farmer cooperatives to access finance to fund the purchase of coffee cherries and investment in equipment to improve the quality of their coffee.

During project design it was determined that banks in both countries perceived lending to smallholder producers to be unattractive due to perception of high risk and cost, with relatively low risk mitigation opportunities. Specific issues identified included:

- Smallholder farmers being unable to provide viable collateral; in the case of Ethiopia, this was further aggravated by a land ownership policy where farmers do not own their land
- High transaction costs for processing and monitoring small loans
- Weak farmers' organizations, restricting the ability to lend to aggregated groups of farmers
- Lack of straightforward, efficient loan recovery on default
- Inadequate understanding of the coffee sector by the banking industry

The constraints identified were largely similar to those highlighted in an earlier study jointly undertaken by the CFC, ICO, and the World Bank in 2000.<sup>3</sup>

<sup>&</sup>lt;sup>2</sup> Sustainable Credit Guarantee Scheme to Promote Scaling Up of Enhanced Processing Practices in Ethiopia and Rwanda (Project CFC/ICO/48), currently being implemented by Centre For Agriculture And Biosciences International (CABI) and Rabobank.

<sup>&</sup>lt;sup>3</sup> "Marketing and Trading Policies and Systems in Selected Coffee-Producing Countries", Country Profile, February 2000; CFC/ICO/04FA.

### Project Design: Introduction of a Credit Guarantee Scheme to Account For Lack of Collateral

Project research showed a lack of collateral as a major constraint to borrowing by farmers, with most banks requiring collateral valued at a minimum of 100% of the loan amount, in addition to interest. As such the project decided to utilize a credit guarantee scheme to address this barrier, enabling banks to use the guarantee partly as an alternative to traditional forms of collateral.

The project drew up a credit guarantee scheme based on a risk-sharing agreement between the CFC and Rabobank Foundation, with CFC contributing US\$2 million to cover half of any losses incurred through the lending made to farmers as part of this project. Rabobank Foundation acted as the second guarantor to the domestic banks involved in lending to farmers as part of this project. In addition to the guarantee, Rabobank International Advisory Services (RIAS), was contracted by CFC to provide technical assistance to the banks to educate them in lending to the coffee sector and to provide technical assistance to coffee cooperatives on corporate governance and financial literacy. Other project actors included:

- **Public Sector Project Management.** In Ethiopia, the Ministry of Agriculture and the Rural Development, Extension, and Marketing departments managed the project on a day-to-day basis, while in Rwanda the National Agricultural Export Development Board provided support.
- **Project Implementation.** Centre for Agriculture and Biosciences International (CABI) was the project executing agency with primary responsibility for project coordination, supervision, and monitoring. In addition, CABI led the work on agronomic aspects for cooperatives and market access for cooperatives.
- Technical Assistance Banks and Cooperatives (Financial and Organizational Management). RIAS provided technical assistance to the banks participating in the project, building their capacity to understand and lend to the coffee sector. RIAS also provided technical assistance to cooperatives on financial literacy and corporate governance, with additional support from CABI.
- Commercial Banks. The selection of banks to participate in the program was made during
  project design, with Cooperative Bank of Oromia (CBO) selected in Ethiopia and the Banque
  Populaire (BPR) in Rwanda. Their selection in this pilot phase was influenced by their existing
  link with Rabobank<sup>4</sup> and their focus on the agricultural sector and the availability of a network of
  branches in rural areas.
- **Borrowers, Beneficiaries.** In both Rwanda and Ethiopia, borrowers included farmer cooperatives, small- and medium-sized enterprises, and large-scale commercial farmers, active in coffee production, processing and trading. In Ethiopia, lenders selected eligible borrowers in collaboration with project management. The size of the potential guarantee was US\$2.25 million. At commencement, 42 cooperatives were selected to participate in the scheme, and their applications were submitted to the Cooperative Bank of Oromia for assessment. In Rwanda, the size of the potential guarantee was US\$1.35 million. At project commencement, 20 cooperatives were selected and their applications were selected and their applications were sent to BPR for assessment.

The project implemented a series of activities to improve the ability of the banks to lend and the ability of the selected candidates to borrow. Key activities included:

<sup>&</sup>lt;sup>4</sup> Cooperative Bank of Oromia (CBO) is a partner bank of Rabobank international. Banque Populaire du Rwanda (BPR) is a partner of Rabobank, which itself holds an equity stake in BPR.

- 1) Assessment of the existing system used by the banks to advance and recover loans from their coffee sector clients. Information was collected from banks on their criteria for disbursing and recovering loans related to coffee, gaps were identified, and improvements suggested and implemented by the banks. To facilitate this work, information was gathered from the potential cooperative borrowers about factors that could impact their ability to repay their loans (key factors included: inadequate management/leadership of cooperatives, lack of financial literacy, and poor transparency). The banks utilized this improved credit assessment process when determining whether to lend to the cooperatives seeking funds.
- 2) Identifying and addressing challenges to lending to cooperatives and addressing these challenges. Surveys conducted at banks and at cooperatives identified key barriers to lending, including: a) banks were reluctant to take on the additional costs associated with administering many small business loans to coffee cooperatives; b) banks perceived the business management skills of the cooperative leaders to be weak; and c) cooperatives struggled to complete the documentation required to apply loans. As a result, the project implementation team (CABI and RIAS) developed a capacity-building program for cooperatives to improve their management and financial literacy skills and enhance their attractiveness to banks. In addition, the technical assistance provider ensured the provision of agronomic capacity building, including seedling preparation and planting, coffee maintenance (pruning, organic and mineral fertilizer application), pest and disease control, coffee extension services, and coffee processing.
- 3) Building the capacity of bank loan officers to lend to the coffee sector, and coffee cooperatives. RIAS organized training sessions for the bank staff in charge of lending to farmers. This training involved educating loan officers about the sector so that they would better understand the borrowers and gain an appreciation of ways to assess their creditworthiness and make more informed lending decisions.

### Performance of the scheme

**Ethiopia.** CBO was established in October 2004 with the purpose of providing financing to primary cooperatives and as such already had significant experience with this sector. The bank enjoyed a 98% loan recovery rate and had proven credit screening and monitoring processes already in place.

Out of 42 cooperatives identified at the outset, 22 cooperatives that complied with the criteria were selected to participate in the credit scheme, and templates and guidelines for the preparation of business plans were developed for these cooperatives to apply for loans to finance the 2012/13 coffee season. Working capital loans amounting to the equivalent of US\$820,000 have so far been provided to 11 cooperatives in Ethiopia under the credit guarantee scheme. All these cooperatives are receiving their loans directly from the bank for the first time in their history.

Cooperatives with no previous history of accessing loans directly (having previously relied on parent cooperatives) now feel more empowered technically to access loans independently. These achievements were made possible by the capacity-building and education activities implemented in the country since the start of the project. In addition to the capacity building at the cooperative level, the guarantee scheme provided support to CBO in order to lend to clients that historically would have been excluded due to lack of collateral.

However, it should be noted that while the program has enabled new loans to be made for working capital purposes, no longer-term loans were made for investment purposes, which was one of the

original project goals. This highlights the continued challenges, even with a guarantee program in place, that hinder banks from lending longer-term funds to clients for investment purposes.

**Rwanda.** The guarantee scheme was launched in Rwanda with a selection process to identify eligible cooperatives. A set of minimum criteria for accessing loans were established by BPR for cooperative selection and specified: a) the cooperative must provide a capital contribution equivalent to 50% of the loan requested; b) evidence of market access in the form of a forward contract or letter of intent from a potential buyer; c) a good track record of management of washing stations over previous years; d) acceptable financial performance over the past two coffee seasons; requirement of fixed collateral with a value equivalent to 130%. As such, even with the guarantee of 50% in place, there was a significant requirement for any borrowing cooperatives to prove their managerial and technical business management competence and their financial sustainability.

During the 2011/12 coffee year, only three cooperatives out of the 20 that applied were able to meet the rigorous selection criteria. These three cooperatives were provided with total loans equivalent to US\$365,000. However even with the rigorous selection criteria, all three cooperatives failed to repay their loans due to a severe drop in prices. This example showcases that creditworthiness and financial performance can be derailed by outside factors in spite of a rigorous due diligence program and the provision of technical assistance in cooperative and financial management.

In the following year, only four cooperatives were able to prepare and submit acceptable loan applications. Out of these four, only one cooperative met the criteria and was provided with finance. The failure in Rwanda was based on a number of factors, including: the poor corporate governance and financial management of coffee cooperatives; limited capital and availability of collateral; inability of cooperatives to effectively manage price risk; the competitive coffee landscape in Rwanda; and the inability of the bank to process loans in a timely manner, delaying disbursement.

### Conclusion

While the program design was identical in both countries, the outcomes were very different. Ethiopia's effort met with a measure of success in terms of cooperatives receiving and repaying loans, while in Rwanda few cooperatives received loans and there was a high rate of default. The different outcomes are due to differences in context. In Ethiopia, the bank involved in the project has an explicit mandate to work and support cooperatives and was arguably more willing to provide flexibility that BPR was not. Also in Ethiopia, the support from the project implementation agency was more proactive, with greater emphasis on marketing the project to cooperatives and securing their involvement.

Furthermore, the structure of the coffee sectors differs in each country. The multiple small-scale cooperatives in Rwanda, based around washing stations, are often less robust than the primary societies in Ethiopia, which are linked to professional unions. When shocks (such as price falls and spikes) occur, the cooperatives in Rwanda are much less able to command their members' loyalty.

A key lesson from this project is that projects cannot simply be copied from one country to another, but rather local differences need to be adequately accounted for and the project structured accordingly.





## Case Study: Olam – Value Chain Financing through Tight Supply Chains *Source: World Bank/ICO compendium of case studies*



In light of declining coffee yields and quality in Cote d'Ivoire, Olam International, through its local subsidiary Outspan SA, sought to maintain its supply of highquality coffee in Cote d'Ivoire by supporting farmers and cooperatives in its coffee supply chain. In 2012, Olam began a three-part livelihood support program for

local farmers and growers that would directly and indirectly support its supply chain for coffee. This program aimed to increase the volumes and the quality of production in Cote D'Ivoire. The three parts comprise: 1) introduction of good agricultural practices to cooperatives in order to access better technologies and management techniques; 2) asset building for farmers and cooperatives; and 3) rejuvenation of coffee trees and farms. Providing access to finance was one of the key mechanisms within this program for increasing the volume and quality of coffee available to Outspan.

### Overivew of Olam

Olam International is an agri-business operating in 65 countries. It works within value chains to identify and implement measures to grow responsibly as well as to sustainably deliver products. In 2010, Olam introduced The Olam Livelihood Charter, which focuses on eight core areas: 1) Finance, 2) Improved yield, 3) Labor practices, 4) Market access, 5) Quality, 6) Traceability, 7) Social investment, and 8) Environmental impact. Olam has been operating in Côte d'Ivoire since 1994 and currently works with over 85,000 farmers in the country through partnerships with more than 1,000 cooperatives. It is one of the largest exporters of cocoa, coffee, cashew, cotton, and wood products from Côte d'Ivoire. For its coffee operations, the company takes an integrated value chain approach with customers, working to ensure full traceability from origination to delivery.

#### Background

From 2000-2010, Robusta prices were both volatile and experiencing significant declines. Ivoirian farmers struggled to remain afloat during this period, as the lower prices threatened their viability. Given this price volatility, farmers began to limit investment in their operations and neglect their farms by choosing not to replant older plantations; this ultimately lowered yields and quality, resulting in even lower prices. Given that farmers did not have access to financial risk management instruments they were forced to manage price risk through suboptimal management techniques, such as diversification of crops.

Also during this period, cooperatives did not have the necessary funds to purchase the infrastructure to hull their own coffee, which meant they were largely dependent on third-party hullers whose processing resulted in lower quality coffee at a higher cost. This led to a drop in the national coffee crop from 350,000 MT in 2000 to the current crop of around 100,000 MT, which has seriously impacted the ability of Outspan to access and trade coffee of sufficient quality in the quantities it desires. It also negatively impacted the ability of farmers to get adequate finance to invest in their operations.

Given its desire to protect its access to high-quality coffee (and thus its supply chain) while supporting

OLAM's Livelihood Charter, Outspan introduced a holistic program that would allow farmers to produce larger volumes of coffee of better quality. This required farmers both to make appropriate agricultural decisions and be able to borrow the capital necessary to invest in their operations. The program therefore had to address a lack of finance for asset building, along with price risk and yield risk. As such, Outspan choose to focus on building farmer/cooperative capabilities and providing these groups with the necessary resources to be able to operate on a sustainable basis.

### Approach

Before this initiative was introduced in 2012, there was very limited involvement of exporters in the supply chain. In general, exporter participation was limited to pre-financing the licensed buying agents (LBAs) or cooperatives for their working capital requirement and buying bush coffee from them. Outspan wanted to carry out the program by providing direct support to farmers and cooperatives in the supply chain.

Outspan's program needed to break the vicious cycle created by poor yields, high production costs, and exposure to risk. This required that Outspan take a holistic approach that addressed the challenges within the supply chain, beginning with production, through to processing, and finally to marketing. By supporting the whole supply chain, the Outspan program would hopefully guarantee better supply and quality of production. Cooperatives were critical to the program's success as they enabled farmer groups to come together and get better value for their produce compared to selling it directly to LBAs.

There were three primary project activities:

**Farmer Training.** Outspan carried out farmer training that focused on best practices at the production end of the supply chain, which could improve yields and assist farmers in getting higher prices. The best practices covered in the training were primarily in the areas of farm management and related to postharvest practices. OLAM developed material and organized training sessions to communicate these practices to farmers. Cooperatives were selected based on their organizational strength, production volumes, and openness to innovation. Farmer selection was conducted by each cooperative and the training sessions provided a mix of classroom and on-field training. The main activities were capacity building around good agricultural practices in order to improve the quality of coffee and yields. The activities under this umbrella included training on good agricultural practices, use of model farms to explain practical operations, and the dissemination of posters explaining good agricultural practices. The training typically covered one or more of the following topics: post harvesting practices, good storage practices, coffee defect control, rain water harvesting, use of fertilizers and pesticides, and farm preparation for planting.

**Asset Financing.** In order to bring down the cost of hulling and to ensure that farmers and cooperatives could control for quality, the program aimed to provide asset financing for hulling machines. The hope was that the farms could increase output and ensure the best outcomes for cooperatives and growers. These machines would reduce the costs of processing and spare farmers and cooperatives from utilizing more expensive third party hullers. This work began with assessment of available hulling machines in the market. Following the assessment, it provided asset financing to key suppliers for the purchase of shortlisted machines. This was done through Outspan's cooperative network in two phases: November 2012 - January 2013, and November 2013 - January 2014.

Outspan assesses the demand among the cooperatives for hulling machines at the start of the crop year. Based on the numbers of hulling machines to be purchased, the price of the machine is centrally negotiated. In general, each machine costs between US\$2,500-4,000. These machines are then given to the cooperatives as material finance. The amount is recovered from the cooperatives in the same crop year from the deliveries made by the cooperative (US\$10-20/MT delivered). If the cost is not recovered in one year, it gets carried forward to the following year. Essentially, the finance is for 6 months but can get carried over for 18 months. This finance is at zero cost to cooperatives.

**Promotion of High-yielding Varieties through Coffee Rejuvenation.** Finally, Olam wanted to encourage farmers to rejuvenate older plantations by planting higher-yielding varieties to improve the overall availability of coffee and the quality of that coffee. The Olam program encouraged the development of nurseries at cooperative level and its support included the cost of setting up the nursery, seeds, monitoring, and technical support. Once ready, the saplings were distributed to farmers to enable them to replant part of their land with these higher yielding varieties. This work was carried out with 20 cooperatives per year in two phases: September 2012 – June 2013, and September 2013 – June 2014. In the crop rejuvenation program, the seeds and infrastructure (bags, sickles, and water pumps) were provided on a grant basis, while the cooperative bore some cost of maintenance of the nurseries for around 6 months. Partial cost of this maintenance was reimbursed to the cooperative at the end of the crop year in the form of cooperative premiums.

#### Outcomes

There has been some level of success within all three areas of the project. As a result of the work on implementing good agricultural practices, 6,000 farmers were trained directly and another 20,000 farmers indirectly.<sup>5</sup> Following these initial years, it is hoped that 10,000 farmers can be trained annually and that 75% of procurement will be derived from supplier-owned hulling machines.<sup>6</sup>

The program financed 61 hulling machines for 37 suppliers in the fiscal year to June 30, 2013.<sup>7</sup> In FY14, this same program is covering 37 hulling machines for 25 suppliers. As a result, better quality coffee has been received from suppliers having their own hulling machines, and suppliers have seen better margins due to hulling charges and quality premiums. The savings to farmers and the additional revenues from the new hulling machines are significant. The average cost charged by third-party hullers is about 25 CFA/kg (US\$50/MT). Cooperatives conducting their own hulling themselves can manage 10-12 CFA/kg (US\$20-25/MT). This is direct additional revenue to the farmer. On the quality front, old hulling machines can give outputs of anywhere between 30-50%. Outspan conducted a randomized trial that showed the average outputs in Côte d'Ivoire were approaching 43%. The new hulling machines being given under this program can give outputs between 48-52%. The higher outputs result in higher saleable quantities for the farmer. Also, these machines better maintained the quality of green coffee. Hulling with these machines already reduces damage to beans by 2-3%; this enables farmers to get quality premiums for their produce, which could range from US\$20-50/MT.

<sup>&</sup>lt;sup>5</sup> At a rough estimate, there would be 150,000 Ivoirian coffee farmers, of which Outspan would be sourcing from approximately 40,000 farmers.

<sup>&</sup>lt;sup>6</sup> The quality of hulling machines plays a vital role in the output and quality of the coffee. Although not part of good agriculture practices, it is a critical lever to ensure final quantity and quality of produce.

<sup>&</sup>lt;sup>7</sup> Fiscal year for Outspan runs from July till June

While the project has been largely successful with farmer training and hulling machine placement, success with the crop rejuvenation program has not come as easily. The crop rejuvenation programs required significant resources in order to gain the necessary scale and given that all finance has come from Olam's own funds, there is a limit to the size of the program. In the future, the program hopes to access additional funding to support its crop rejuvenation efforts and it is currently in discussion with Conseil de Café-Cacao for a possible public-private partnership for crop rejuvenation.

### Lessons Learned

In a program where Outspan invests in its supplier cooperatives throughout the production cycle and only seeks to benefit from the increased throughput and quality improvements, side-selling always remains a significant risk. To manage the risk that cooperatives will sell their output to other companies, Outspan only works with cooperatives that have and maintain a track record with the company. It keeps a record of its exposures to each cooperative and depending on it track record and any side-selling adjusts accordingly. Outspan also maintains robust tracking mechanisms with the cooperatives, and only holds collateral in the form of vehicles. Finally, Outspan provides a fair market price for purchases. Given that its prices are competitive with the market, there is little motivation for the farmer to sell elsewhere.<sup>8</sup>

### Summary

Outspan's approach has been to work with small- and medium-sized suppliers, growing its business by first helping them grow theirs. Support for initiatives that enable its suppliers gain access to more and better quality coffee is central to this idea. This enables Outspan to earn more through both higher throughput and also better margins. The internal accruals and the margins that Outspan makes from its operations are enough to support the training programs and hulling machine purchases. However, demand for support through the coffee crop rejuvenation program outstrips Outspans allotted resources for crop replanting.

<sup>&</sup>lt;sup>8</sup> These activities are primarily focused on managing the yield and quality risks. As far as price risk is concerned, the farmers are protected against price fluctuations by the regulatory body, which sells the crop forward and, depending of the realizations, declares a fixed/minimum farmer price for the season.

# Case Study: Dunavant Zambia Ltd. and Cargill Zambia Ltd. — Farmer Input Credit

Source: IFC, "Innovative Agricultural SME Finance Models," 2012



Dunavant Zambia Ltd. is the largest cotton company in Zambia, with 100,000 contract farmers and a 60 percent market share.



Cargill, which purchased Clark Cotton in 2006, has around 1,000 employees in Zambia. Together, both companies process around 90 percent of the country's cotton.

Dunavant and Cargill finance contract farmers through a structured loan package that provides inputs on credit. The growers participating in the scheme have no assets for collateral because land is communal and held in a trust by a chief. To participate in the scheme, a grower must have at least 0.5 hectare of land. The input loan package includes: planting seed, which is disbursed at the beginning of the season; insecticide, which is disbursed after verification by field staff that the seed has been planted; fertilizer, which is provided at the same time as the insecticide; plastic knapsack sprayer for application of the pesticide for farmers or groups of farmers with 1 hectare of land; and wool bags for storage. The total value of the package without a sprayer is approximately 250,000 Zk (USD 47) per hectare and with a sprayer 520,000 Zk (USD 98) per hectare. The inputs are high quality, standardized products that would not be available to the farmer without the program. As such, more than 99 percent of Dunavant's contracted farmers participate.<sup>9</sup>

After harvest, farmers move the cotton by hired oxcart to one of the 1,440 buying points where they receive cash on delivery. The final payment received by the farmers at time of delivery is the net of the costs of the input package received. Although contracts are entered between the company and the growers, the system relies on trust and strong mutual commercial incentives, as contracts are generally not enforceable. Participating growers receive an identity card that establishes an account number, and the transaction is carefully tracked through a complex, paper-based monitoring system at the company's main office in Chipata. In order to ensure the expected quality of production and promote grower loyalty, Dunavant and Cargill make training an essential component of the program. Training covers issues from proper pesticide application to care and maintenance of sprayers, and is supported by an expansive network of permanent field staff.

<sup>&</sup>lt;sup>9</sup> Agrifood Consulting International (2005)

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## Case Study: Root Capital – Financing Cooperatives and De-risking the "Missing Middle"

Source: Root Capital, World Bank/ICO compendium of case studies

Root Capital is a nonprofit social investment fund that delivers credit, typically ranging from US\$50,000 to US\$2 million, as well as financial training to agricultural businesses aggregating smallholder farmers in Latin America and Africa. Its ultimate goal is to help improve rural livelihoods and promote environmentally sustainable agricultural practices. Root Capital's clients include producer associations and private businesses that source and/or process agricultural products for both export and domestic markets. As of the first quarter of 2014, Root Capital had disbursed more than US\$659 million in credit to 504 businesses across 30 countries since its inception in 1999.

Most of Root Capital's borrowers fall into a 'missing middle' within the financial services sector, in that they are served neither by microfinance institutions (MFIs) nor commercial banks for a combination of reasons, including common perceptions that the agricultural sector is inherently high-risk, low-return and the basic challenge of reaching remote rural areas. Financial institutions that do lend to agricultural businesses in rural areas generally have rigid hard collateral requirements that exclude all but the most formal and best-capitalized businesses.

To reach businesses in this missing middle while appropriately mitigating risk, Root Capital uses an innovative value chain approach that includes the following key components:

- Evaluation of collateral based on businesses' future sales (purchase agreements) rather than their existing assets. Typically the borrower is eligible for a loan of up to 60% of the value of the signed agreements. The purchase agreement, in effect, becomes the collateral a discrete, future revenue stream pledged by the borrower to repay Root Capital's loan.
- 'Staggered' lending, in which Root Capital offers progressively larger and/or more complex loan products to long-time clients as they build their credit history and asset base. This enables Root Capital to 'grow with the borrower' while managing risk.

Root Capital's entry into the coffee sector was in part facilitated by financing the supply chains of Starbucks, Keurig Green Mountain, Equal Exchange, and other leading coffee roasters. This approach enabled Root to significantly expand its outreach in a timely and effective manner. The advantages of working with businesses with pre-established relationships with leading coffee buyers include:

- Acceleration of client identification, as the buyer can refer the cooperative to Root Capital, rather than the latter having to seek out the cooperative;
- Simplified due diligence, as the buyer can act as a reference;
- A credible buyer is already in place: the producers are already in established relationships with pre-approved buyers, thereby enabling purchase agreements to be taken as a form of collateral.

This is a mutually beneficial arrangement as the buyer is able to facilitate seasonal finance to its cooperative suppliers, which improves the performance of the cooperative and assists in ensuring delivery of contracted coffee.

### Loan Terms

During 2013, 71% of disbursements consisted of short-term trade credit loans<sup>10</sup> with terms of up to a year, generally based around a single harvest or production cycle. This product addresses the cash constraint coffee businesses experience between the time they purchase coffee from producers and receive payment from buyers several months later. Root Capital accepts signed purchase agreements as a form of collateral where a business would normally need to give hard collateral such as land titles or liens on infrastructure. (For businesses working in domestic non-coffee value chains, in which they are unlikely to have purchase agreements from a major global buyer, Root Capital will take hard collateral if it is available.)

The remaining 29% of disbursements were in the form of longer-term capital expenditure loans,<sup>11</sup> with maturities of up to five years, that allow enterprises to invest in value-added services or equipment that can lower production costs and raise product quality.

### Value Chain Approach: The Use of Purchase Agreements as Collateral

Root Capital delivers credit through a form of value chain finance to manage risk. Lending to smaller rural cooperatives presents a number of challenges for financial institutions, both banks and non-banks. For example, coffee cooperatives generally have limited collateral, weak and/or inexperienced management teams, and organizational structures that at times can prevent effective managerial control and decision making. Collateral in particular is generally an important prerequisite for commercial financing.

To overcome this challenge, Root Capital (and other socially-oriented lending institutions) use purchase agreements as a replacement for fixed asset collateral. The premise is that the contract between a coffee buyer (importer or roaster) and seller (coffee cooperative) acts as a replacement for collateral. Typically the borrower is eligible for a loan of up to 60% of the value of the signed agreements to secure coffee from its members, process it, and deliver it to port. To this end Root Capital has worked with over 100 coffee buyers, ranging from small specialty traders and roasters to multinationals, to facilitate lending.

Clearly the value of the contract depends on whether the contract will be fulfilled by the cooperative, and as such, the lender will usually spend a significant amount of time understanding the strength of the value chain. This analysis occurs at two levels:

Root Capital evaluates the relationships between the client and its buyers, taking into
consideration how long the parties have worked together, whether product rejections have
occurred, and the nature of the contract between them and the reputation of the buyer, among
other factors. The stronger the relationships, the more likely the chance of contract fulfillment
and the greater the value of the security that the purchase agreement provides.

<sup>&</sup>lt;sup>10</sup> Actuals 2013 – data provided by Root Capital

<sup>&</sup>lt;sup>11</sup> Ibid.

• Root Capital also evaluates the strength of the relationship between the cooperative and its suppliers. A strong relationship between an enterprise and its producer suppliers indicates that value is being delivered by the enterprise. All else being equal, this will reduce the risk both of producer side-selling and enterprise default on delivery of contracts and loans. Integrity and transparency of management, while difficult to measure, are also important to gauge the balance between the management's capacity and license to operate as well as producer oversight and buy-in.

**Repayment flows through a triangulation agreement.** An interesting element of the lending methodology utilized for export-oriented commodities (such as coffee) is the use of the tripartite lending structure. This structure is highly effective in reducing the risk of non-repayment as it ties the lending approach into the flow of the coffee, and ultimately adds to the strength of the relationship between buyer, producer, and lender. This model has been used for a number of years by many of the socially-oriented lending institutions and has been shown to be effective in raising the level of repayment over and above a direct loan to a cooperative without such a structure.

Under this agreement, Root Capital is paid directly by the buyer when the product is shipped; the principal and interest recovered and the remainder remitted to the client. The process is formalized with a triangulation agreement signed by the buyer, supplier, and Root Capital, which lays out the responsibilities and obligations of each party and the repayment mechanism. The triangulation arrangement is detailed in Figure 1.



Figure 1 – Root Capital's Value Chain Finance Model<sup>12</sup>

The critical elements of success with such a tripartite arrangement are that:

<sup>&</sup>lt;sup>12</sup> Source: Devaney, PL (2011), Global Agricultural Value Chains: Sustainable Growth as a Means for Sustainable

- The loan total should never exceed the total value of the physical coffee contract. For contracts that are Price-to-Be-Fixed, the lender may choose to lend only a minimum sales value of the contract to ensure that the loan never exceeds the total contract value;
- Loan maturity is directly related to the delivery of the commodity (the coffee);
- Payment for the coffee on receipt by the buyer is made to the lender, rather than directly to the borrower (the coffee cooperative), significantly reducing the risk of funds being diverted and the loan not being repaid.

The tripartite arrangement ensures that, as long as the commodity (in this case the coffee) is delivered to the buyer and meets the standards defined in the contract, the lender (Root Capital) will receive sufficient funds to satisfy repayment of the loan.

The process of building a relationship with clients, critical to the alternative lending approach of Root Capital, also allows the loan officer to assess the technical assistance needs of the enterprise and identify opportunities to build enterprise capacity. Areas of weaknesses identified during the due diligence process can be addressed through Root Capital's Financial Advisory Services (FAS)<sup>13</sup> program or in certain cases, through Root Capital coordinated third-party agronomic assistance. In 2013, the FAS Development, Community Development Investment Review – Federal Reserve Bank of San Francisco program provided financial management training to 296 enterprises.<sup>14</sup> Common training topics, delivered through a combination of workshops and one-on-one engagements, included accounting, financial planning, financial risk management, financial statement analysis, and loan application preparation and credit management.

<sup>&</sup>lt;sup>13</sup> More information on the Financial Advisory Services Program can be found on the Root Capital Website: <u>http://www.rootcapital.org/our-approach</u>

<sup>&</sup>lt;sup>14</sup> Root Capital Performance Report: Q4 2013, P.2

# Case Study: Olam, Vodafone, and TechnoServe – Mobile Solutions through the Connected Farmer Alliance

*Source: Olam, "<u>Transcending Boundaries in Agriculture: The Connected Farmer Alliance</u>," October 2014 (authored by Simon Winter, TechnoServe),* 

and Vodafone Press Release, "<u>Partnership to use mobile phones to boost productivity and incomes of</u> <u>30,000 Tanzanian farmers</u>," October 2014



In 2012, as part of larger efforts linking agriculture and technology, TechnoServe partnered with Vodafone and USAID to launch the Connected Farmer Alliance (CFA). The initiative aims to improve the productivity and livelihoods of 500,000 smallholder farmers in East Africa through creative mobile solutions that address major challenges in the agriculture industry.

Among these challenges are several factors that can prevent smallholder farmers and agribusinesses from working together on a larger scale. For instance, farmers often require specialized extension services to help them improve the quantity and quality of products. Many face long journeys over

difficult roads to collect payments for their goods. And agribusinesses struggle to coordinate and communicate effectively with thousands of small producers spread out over large distances.

In response, the CFA initiative developed business-to-business mobile applications that provide farmers with technical advice, market information, extension services, input crediting, and payment systems.



In Tanzania, Olam has signed on as the first large agribusiness to test out the program. Olam is now working with CFA to roll out mobile solutions for around 30,000 farmers it works with in the cocoa, coffee and cotton sectors. Olam's coffee, cotton and cocoa smallholder farmers in Tanzania will benefit from:

- farming advice via text message;
- notifications about upcoming training sessions and events;
- real-time information about changes in market prices; and
- the introduction of mobile money transfer using Vodafone's M-Pesa service in place of cash from December 2014 onwards, giving farmers greater control over their finances and increasing security.

The agreement will lead to increased productivity and revenues for smallholding farmers supplying cash crops to Olam. The creation of a mobile-enabled supply chain will also provide benefits for Olam, including:

- increased transaction security through the adoption of M-Pesa, reducing cash transportation costs and improving Olam's ability to monitor and trace transactions;
- enhanced communications with farmers, strengthening relationships and building greater loyalty; and
- greater business efficiency as digital systems replace paper-based transactions and records.

CFA ran an earlier program with Multiflower, the leading flower seed exporter in Tanzania, helping address key business challenges. To receive payment, farmers had to travel as far as 120 miles to

Multiflower headquarters at significant risk and expense. And there was no efficient, cost-effective way for Multiflower to communicate important information to farmers such as logistics, contracts, delivery records and agronomic requirements.

The CFA team helped Multiflower implement four mobile applications that addressed these challenges: farmer data management; loan requests/disbursements; SMS notifications; and payments and e-receipts.

Over the next nine months, both the farmers and the agribusiness saw promising changes. Mobile payments saved farmers both time and money (each trip to Multiflower headquarters had taken about \$11 and an average of nine hours) and gave them much greater visibility into deliveries, loans and payments. For Multiflower, the mobile solution meant fewer trips to the field, decreased security expenses, and less time required to manage farmers' contracts, payments and loan requests. In the nine-month period alone, Multiflower distributed \$74,000 in mobile payments to three hundred farmers in its network.

CFA is now working with five agribusinesses and nearly 9,000 farmers in three countries, with plans to scale up with new clients and new mobile solutions in the next year. The project's long-term sustainability is bolstered by the consistent revenue stream and expanded customer base it affords its private sector partners.

### Case Study: NMB Tanzania – Input/post-harvest financing through warehouse receipts and commitment savings

Source: DEG, "Financial Services for Smallholder Coffee Farmers in Tanzania," November 2014

Individual small-scale producers in Tanzania need post-harvest finance in order to facilitate collection, purchasing and marketing of coffee. Due to the marketing process of coffee, it often takes several months until payments of the ultimate buyers (mostly international coffee roasters) are actually transferred to the exporting companies who purchase the coffee from producer groups at the Tanzanian coffee auction. Smallholder coffee farmers who are undercapitalized and have low incomes rely heavily on such post-harvest facilities to bridge the period until the payments for coffee sales are received. Thus, post-harvest financing either through the cooperative union structures or producer organizations is an inherent element of the marketing process of coffee in Tanzania.

Post-harvest finance in Tanzania is largely granted through a collateralized commodity financing model. In this model, referred to as a warehouse receipt system, finance is provided against actual deliveries of coffee by an aggregator to a warehouse. The model was first introduced by National Microfinance Bank (NMB) after extensive piloting with technical assistance from the Dutch Rabobank in 2007 and is now operated by other financial institutions in Tanzania. The system has proven to be a solid post-harvest loan distribution model in which the coffee deposited at the warehouse serves as a cover for loan installments to crop collectors who deliver coffee to the warehouse.

The model works by extending loan installments against deposits of unperishable commodities such as coffee (usually 70% of the crop value) in the financial provider's controlled and authorized warehouse after submission of a receipt by the warehouse operator to the financial institution. The crop remains in the warehouse until buyers purchase the product and pay, thus enabling the financial supplier to provide working capital to farmers while the commodities are still stored. After the release of coffee to the Tanzania Coffee Board auction and sale of coffee to the exporter, the proceeds are transferred to the crop collector's bank account after cost incurred for previous loan installments are deducted. These funds can be either disbursed to the crop collector through a final payment or used as savings/collateral for the provision of inputs for the following season (see Figure 1 below). The system also provides a mechanism of mitigating commodity price volatility by giving farmers flexibility to sell their product when the market offers favorable prices, usually resulting in higher proceeds for the farmers' coffee sold.

A report by NMB suggests that Tanzanian coffee farmers selling through the warehouse receipt systems benefit through considerably higher prices for sales of coffee than NMB non-clients while the economic benefits outweigh the costs of operating the system.<sup>15</sup> However, the prevalence of a limited number of dominant buyers in the coffee sector, the buying monopoly of cooperative unions and a lack of capacity of the Warehouse Licensing Board under the Tanzanian Ministry of Industry and Trade, limit the economic benefit of the system.

<sup>&</sup>lt;sup>15</sup> NMB, "Warehouse receipt system, economically beneficial to farmers. But!" June 2013, explores the economic benefits of warehouse receipt financing for different crops based on field data collected in a study in 2012.



Figure 1: Warehouse receipt system financing

### Commitment savings

Another product of NMB is the 'kilimo account package' for 'emerging' farmers (semi-commercial businesses of 50 acres of coffee and above), which promotes savings of farmers trying to integrate crop collection and input loans by using the after-market sales of coffee. Farmers are encouraged to save a part of their generated income from final sale into a personal account, which is then used as collateral for the pre-financing of inputs in the next season. While the product is designed for medium-sized farmers, the general approach could also be conferred to small-scale coffee growers.

Hanns R. Neumann Stiftung (HRNS) is operating a similar model for producer organizations in cooperation with NMB and CRDB Bank in Mbeya: Coffee is delivered to the warehouse by farmer groups who receive a receipt from the factory which is used to apply for a loan at a bank (NMB or CRDB). The bank translates the amount of coffee delivered into cash based on an average price of the preceding season. Once the loan is confirmed, the bank requests an invoice from a genuine input supplier selected by the farmer group and pays the supplier directly. The input supplier gives the paid inputs to the groups who are distribute them among their members. In addition, about 10% of the total loan can be given to the farmer group in cash depending on the demand. Since coffee is delivered to the warehouses in Mbeya between May up to mid of August, the inputs for next season can be procured in time since they are only needed in November/December of the year.

However, these efforts do not constitute harvest pre-financing in a classical sense. Although these financial models facilitate the provision of inputs, the products are not granted on a pre-harvest loan basis, and thus not subject to risks such as crop failure or moral hazard, but procured through existing capital (savings) of smallholder farmers or capital equivalent in the form of coffee stored at warehouses. Thus, these measures aim to promote agriculture-related commitment savings and the financial management by farmers thereby making (existing) funds available for investments in the following coffee season.



## Case Study: Sustainable Harvest – Minimizing Price Risk through Variable Sales Using Call Options

*Source: Sustainable Harvest Coffee Importers, World Bank/ICO compendium of case studies (Sep. 2014)* 

INTERNATIONAL

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Cooperatives that sell coffee forward on a fixed price basis run the risk that subsequent price rises will cause their members to default and side-sell instead.

**RELATIONSHIP COFFEE** subsequent price rises will cause their members to default and side-sell instead. Selling forward on a price-to-be-fixed (PTBF) basis and fixing the sales price at the time coffee is bought excludes most (if not all) price risk, as the two transactions (buying green coffee and fixing the PTBF sale) are literally back-to-back. In both instances, however, buying a call option ensures a cooperative can still benefit from subsequent price rises should they occur; the cost being an integral part of managing price risk. The choice as to whether to buy options is therefore a strategic decision.

### Background

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Price volatility complicates the timing of marketing decisions for the entire supply chain, particularly for managers of coffee cooperatives who take sales and pricing decisions on behalf of their members. If prices rise subsequent to sale, then the members may refuse to supply (default); conversely, if prices fall subsequent to buying coffee, then a cooperative will lose money. Taking sales decisions in this environment is not only difficult but can also be quite hazardous. Even where a guaranteed floor price, such as provided by the Fairtrade model, is in place, volatility still impacts on the decision-making process, as not all of a cooperative's production is necessarily traded under Fairtrade conditions. Realizing that poor decision-making processes were detracting from an efficient and sustainable supply chain, in 2009 the Portland, USA-based firm Sustainable Harvest Specialty Importers created an extended program to promote price risk management and improve financial literacy and market insight.

Today, 41 cooperatives have joined up, including 27 in Peru and 14 across Central America (Costa Rica, Guatemala, Honduras, Mexico, and Nicaragua).<sup>16</sup> The need for such an approach has again been highlighted by the extreme volatility of the New York C Contract during the last three harvest seasons in Latin and Central America. Financial literacy, audited accounts, and an ability to demonstrate value-added are all prerequisites for any business case for all types of commercial enterprise in all types of industries and sectors.<sup>17</sup> In terms of accessing finance, having confirmed sales on the books to pre-approved buyers makes it easier to obtain seasonal funding to finance coffee purchases. All 41 cooperatives taking part in the Sustainable Harvest program had previously demonstrated their reliability as suppliers, both in terms of coffee quality and respect for contract execution, but all had

<sup>&</sup>lt;sup>16</sup> Partly funded by grants from USAID and other donors. Total cost circa US\$1,000 per participating cooperative who also make a small contributions themselves to ensure solid buy-in.

<sup>&</sup>lt;sup>17</sup> Without financial literacy, a cooperative may not know its true costs (and cannot present a good business case to potential lenders), whereas a lack of market insight may result in blind speculation or indecision. While trading back-to-back (buy and sell simultaneously) sounds simple in terms of risk avoidance, in reality this does not really make the pricing decision any easier.

difficulty in coping with the complexities of taking pricing decisions, including how to manage PTBF sales.<sup>18</sup>

In addition to promoting broad financial literacy and financial discipline, the Sustainable Harvest program consists of ongoing (and annual refresher) training encompassing the functioning of markets, market analysis, the role of futures, using put and call options, and related subjects such as daily position analysis. Initially, a total of four training seminars were held. Participating cooperatives subscribed to independent real-time price information through an account established by Sustainable Harvest, and were charged a minimal fee.

### The Problem

When physical coffee is received, a cooperative should either sell it outright or fix an outstanding PTBF contract; if it does neither, it is engaging in speculation. However, decision-making is complicated by the prospect that the seller can forego potential problems if the market rises subsequent to selling or fixing a price. In the case of pre-season forward sales at outright or fixed prices, such subsequent price rises may even lead to members defaulting by refusing to deliver coffee and sideselling it instead, knowing their cooperative cannot match the spot market price at the time the member's coffee is ready. When prices are near the guaranteed Fairtrade floor price, some cooperatives may decide not to fix, as they are covered as long as the contracts in question are Fairtrade-based. But for many cooperatives Fairtrade sales only account for part of their total turnover.

### The Answer: Variable Sales Using Price Insurance

Participating cooperatives can purchase call options (the right to buy coffee futures forward at a set price) at the same time they sell physical coffee outright or fix an existing PTBF contract, utilizing a Sustainable Harvest-sponsored account. This combination of fixed price and call option is called a variable sale, as the net result can still vary even after the sales price has been fixed; if for example the futures market rises, so will the value of the call option. On expiry, the option will then be cashed in and the profit, minus the option cost, will accrue to the cooperative. Should the market fall, then the option is simply allowed to expire and the cost (the 'insurance premium' that was paid to benefit from a possible price rise after sale) will be drawn from the original sales transaction.<sup>19</sup>

<sup>&</sup>lt;sup>18</sup> In terms of supply and demand producers need to confirm sales for their production and roasters need to fill their supply line but neither may necessarily wish to set the price at the same time as they make those arrangements. Selling/buying green coffee at a defined differential to the futures market (called Price To Be Fixed – PTBF) leaves the final price decision until later, yet accommodates these conflicting interests. At the same time outright or price risk is changed into differential or basis risk. Basis risk is usually much lower than price risk. Nevertheless, also such sales still require a pricing decisions in that someone has to decide when to 'fix' the futures price that, together with the agreed differential, will constitute the final sales price. In the mainstream coffee trade the 'fixing' of PTBF is often done through the buying and selling of futures contracts, something that many producers may find complicated.

<sup>&</sup>lt;sup>19</sup> Options can be traded daily, meaning the buyers alone decide whether or not to hold them until expiry or to sell them earlier. The cost of options varies and individual cooperatives decide whether they consider the premium worthwhile. Clearly calls are cheaper in a falling market. Cooperatives seeking protection against falling markets can purchase put options (the right to sell coffee futures forward at a set price), but this is not part of the Sustainable Harvest program, as it does not relate to the import of physical coffee.

### Outcome

Today participating cooperatives know their cost price. They understand market behavior and mechanisms better, their decision-making processes have been formalized, and they have learned how to make use of market rallies to transact both physical coffee and options. They now use both fixed price and PTBF contracts and do not necessarily fix entire positions all at once but judge market behavior. Improved monitoring, trading, and risk management has provided some of them not only with more but also with cheaper finance as lenders understand better how this system functions and the assurances it provides. On average, the result for PTBF contracts combined with call options has been better because the cooperatives fixed the price as soon as they had the physical coffee, knowing the call option gave them a stake in any subsequent market advance. Any delay in price fixing might sometimes result in better prices but naturally can also result in a much lower price.

#### Lessons Learned

A key lesson of the Sustainable Harvest program is the importance of having insights on both sides of the relationship (producer and roaster) and of being able to provide real-life information to cooperatives and to lenders.

The program demonstrates that once cooperatives begin to understand how the system works, they realize its advantages and are ready to pay the costs. Initially, however, costs need to be subsidized, requiring suitable promotion of the program's advantages to those who might provide the subsidies. Having said this, it needs also to be recognized that even with detailed education of cooperatives, in 2013 a number of cooperatives with prior exposure to the program did not wish to invest in call options. The prevailing view was that the market would remain depressed and that the cost of this insurance only increased the hardships imposed by an already low sales price.

While the cost of options varies and is influenced by the duration, the strike price, and the general market view. It is also clear that options are more affordable for producers of relatively high-priced coffees and the variable sales approach may not be as attractive or affordable for those producing lower-priced qualities (demonstrating once again there are no one-size-fits-all solutions). And as with all aspects of marketing, managing the variable approach requires a level of sophistication that is absent in many cooperatives and other types of farmer organizations. It takes time to understand the potential value of price risk management generally, and the variable approach in particular. Training programs should therefore be paced accordingly (extending even over a number of years) and need to be updated with real-life examples and situations encountered in the most recent season to ensure the programs transfer real hands-on knowledge.

The program also provides good insight into the question of why a buyer might consider subsidizing or sharing the cost of call options. The answer is that a default (coffee bought is not shipped) usually causes major disruption to the buyers' supply line. In the case of high-quality, such missing coffee cannot be replaced as the buyer likely has purchased (and may have sold on) a specific type of coffee from a particular supplier; details that are often key marketing characteristics. Much of this business is done on a forward basis, i.e. ahead of the actual harvest. Therefore, the motivation for buyers in this approach is to help ensure that the members will in fact supply the specific coffee that the cooperative sold forward.



## Case Study: TechnoServe – Price Risk Management in the Rwandan Market Place

#### Source: World Bank/ICO compendium of case studies



The goal of the TechnoServe project was to protect producer organizations or cooperatives that operate coffee wet mills against potential loss or default due to major price moves, and create access to hedging opportunities. TechnoServe, an international nonprofit organization, works with exporters

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buying from producer cooperatives that own coffee wet mill stations, providing services that help reduce or avoid the losses and defaults that can arise from sharp movements in both local and global coffee prices. The scheme is innovative in its use of cellphone technology to track the daily volume of coffee cherry purchases, the volume of coffee parchment yielded by the coffee washing process, coffee stock movements, and wet mill station operating expense data. This data keeps exporters informed of how much coffee is being held at the stations they buy from, and allows them to use this volume data on the futures market to lock in a price. The program was initiated in 2010 and by 2012, approximately 1,000 MT had been hedged on the New York futures market.<sup>20</sup>

### Background

Rwanda's coffee sector has similarities to many other coffee producing countries. Farmer associations and cooperatives buy coffee cherry from smallholder coffee farmers, process it at their wet mill station, and subsequently sell that coffee to exporters. The exporters then mill, market, and ship green coffee to buyers across the globe. Many exporters are subsidiaries of global trading houses, with some domestic exporters active as well. When purchasing coffee, exporters and buyers reference the international market price when determining their offer price.

As with any other market, a challenge for the Rwandan coffee market is that sharp price movements can occur in relatively short periods of time. Contrast this with the coffee harvesting and production process, in which there is typically a lag of at least 2-3 months between harvest of coffee cherry and sale due to the time required to wet-process and dry-process green coffee. As a result, coffee harvested when the market is strong could be sold at a point when the market has collapsed, adversely impacting the position of cooperatives and their member farmers. As an example, after a significant period of rising prices in 2010, the international price of coffee started to fall dramatically in 2011. Cooperatives in Rwanda suddenly found their profits wiped out, with some at risk of making losses. The risk of default became quite real and answers had to be found to avoid similar occurrences in future. To avoid such exposure to price fluctuations, cooperatives could consider agreeing a price with a buyer for an entire season (i.e. forward selling), allowing them to know exactly what price to expect once their coffee is harvested and processed. However, despite the benefit of price stability, such agreements (informal or contractually bound) are also exposed to their own risks. In particular, should prices fall during the

<sup>&</sup>lt;sup>20</sup> Rwanda produces Arabica, a small percentage of which is processed in modern wet mill stations. The 1,000 MT that was hedged represented about 25% of the total 2012 wet mill station output of some 4,000 MT. The bulk of Rwandan coffee output is processed using conventional means.

season, a buyer might try to renegotiate a contract to obtain more favorable terms. Conversely, should prices rise, farmers might not sell their coffee cherry to the cooperative, choosing instead to sell to a competitor paying a higher price.

### Hedging as a Solution

Price risk is an issue for all actors operating within an agricultural commodity supply chain. Commodity exchanges or futures markets provide access to futures contracts that can be used to manage and protect against price risk. The coffee futures contract traded on the New York exchange represents the global market for Arabica coffee. This market allows coffee sector firms to both buy and sell coffee for a future date, protecting themselves against price movements caused by their position in the physical coffee market.<sup>21</sup> However protecting one's position against price risk can be both time consuming and costly, requiring in-depth expertise of the global markets and these financial products, known as derivatives.

For producer organizations and cooperatives, accessing the futures market is a challenge logistically (distance from market), financially (the need to have sufficient funds to cover hedges and meet margin calls), and in terms of complexity (the risk of increasing rather than reducing risk if a hedging strategy is poorly implemented and managed). As such, the vast majority of trading on the exchanges is by coffee exporters and buyers rather than by producer organizations. Such enterprises have the in-house skills and resources to effectively utilize these markets. With hedging nevertheless representing the best approach against price volatility, the question remained: how could producer organizations benefit from such strategies?

### Providing Price Risk Management to Producer Cooperatives

By working with TechnoServe (which had helped to establish relationships between producer cooperatives and coffee exporter companies), producer organizations were able to benefit from a hedging strategy implemented by coffee exporter companies. In Rwanda, in addition to milling and marketing services, coffee exporters also provide working capital financing to the producer organizations. Working at first with one local exporter, TechnoServe began a program to better enable that exporter to manage the price risk of coffee purchases by utilizing the coffee futures market. The mechanism included an exporter paying a cooperative a price determined by the current international coffee market at the time the purchase was negotiated. The exporter would, in turn, hedge the volume of coffee it purchased through a sale on the futures market, therefore locking in its own price and justifying the price agreed with and paid to the cooperative. As such, all parties in the transaction would no longer be exposed to price fluctuations, minimizing future default risk.

In order to execute on such a strategy, the exporter required accurate, daily coffee volume information regarding daily cherry purchases at the cooperative level as well as how much green coffee that cherry could be expected to yield. By knowing how much coffee the cooperatives had purchased daily, the exporter could use pooled information from its member cooperatives to hedge its exposure and reduce price volatility risks.

<sup>&</sup>lt;sup>21</sup> The physical market is where the actual green coffee changes hands.

### Challenges of Hedging via an Exporter Service Provider

This approach is not without its own challenges. Specifically, exporters provide marketing services to many farm cooperatives at once, require accurate, daily coffee cherry purchase volume reports from each of these rural businesses in order to hedge. Additionally, exporters provide credit services to many cooperatives and need to oversee these loans. The most effective way to do this is to monitor the farm gate prices paid daily by cooperatives to farmers for the cherry they deliver to the wet mill stations and to ensure that these prices are in line with what the international market would justify. With an accurate monitoring tool, exporters can ensure cooperatives do not overpay for coffee cherry, thereby risking a loss at the time of sale and defaulting on loans. If exporters were geographically near to their member cooperatives, they could more easily monitor these businesses closely; however most wet mill stations are rural, located far from where the exporters are based. As such, a more transparent inventory management system was needed to allow exporters to obtain accurate pricing and stock volume information from rural wet mill stations in order to execute on their hedging strategy, as well as for their loan monitoring purposes.

Traditionally, cooperatives have used paper-based records to monitor volume and operating expense information. But paper-based records are difficult to share and easy to falsify, causing delays in information dissemination and difficulties in monitoring for fraud, theft, or poor management.

### A More Transparent Inventory Management System Solution

TechnoServe worked closely with Rwandan exporters and cooperatives to find a solution to these issues. As a result, an SMS bookkeeping tool was developed, linking simple cellphone text message technology to a sophisticated cloud-based platform. The move to SMS bookkeeping enabled daily data collection at wet mill stations that could then be shared real-time with exporters, enabling them to use this volume data to hedge coffee at appropriate scale and times and monitor the risk associated with lending working capital to these cooperatives.

The benefits of using cellphones and SMS technology are widely recognized: cellphone usage is extremely widespread in Rwanda, including among wet mill station accountants. Taking advantage of existing technology removed the need for expensive or complicated hardware (such as computers). Additionally, these phones are relatively simple to use, sparing the need for expensive training. Finally, data sent via SMS is both inexpensive and fast. SMS data can arrive almost instantly rather than be delayed by conventional postage. In short, this program utilizes existing, readily available, and easy to use technology enabling speedy adoption, rapid expansion and reduced user-error.

### How the System Works

SMS bookkeeping requires wet mill station accountants to send daily and weekly messages that are recorded on an online platform, accessible to affiliated lenders and export companies. The daily message reports the kilos of cherry purchased, the cash/credit spent on cherry and the cash advanced to satellite buying sites. The weekly cash message contains opening cash balances, working capital received, and operating expenses at each cost center. A weekly stock message includes data on parchment moved to storage from the drying beds, and the parchment shipped to the dry mill. The cloud-based system collates this information from all wet mill stations, allowing an exporter to view its entire portfolio of wet mill stations at once.

With this information, an exporter at any point can know exactly what the stock position of each wet mill station is; where coffee sits in the chain; and the pricing and cash position of each wet mill station, providing them with sufficient information to ensure that funds are being spent appropriately and to know when they should hedge the exposure. The system promotes financial transparency but also protects private information. Producer organizations, exporters, and other related parties agree on the data that will be viewable to each party at the beginning of the beginning of the season. The system also can be programmed to send performance reports to cooperative leaders and farmers directly, via SMS, thereby promoting financial transparency within producer associations.

### Improving Access to Finance

The program and the inventory management system enabled cooperatives and their smallholder farmer members to benefit from a sophisticated hedging strategy, thereby avoiding price risk and related losses. Exporters, in their role as credit providers, are able to underwrite greater amounts of working capital to the producer organizations, as well as disburse them more timely and efficiently, thanks to the availability of real-time information and the resulting improvement in the performance of producer organizations. This has caused an increase in financing available to producer cooperatives at a time when many businesses and banks continue to be hesitant to extend loans to small, rural, agriculture based borrowers. At the end of 2012, SMS bookkeeping had been implemented at more than 50 of Rwanda's 215 cooperatives. Beginning with the 2013 coffee season, TechnoServe has begun implementing this approach in Tanzania and Ethiopia.