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# Catalyzing Smallholder Agricultural Finance

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# Table of Contents

Executive Summary . . . . .	1
Context and Purpose . . . . .	2
The Need and the Market Opportunity . . . . .	4
Addressing the Demand . . . . .	10
Growth Pathway 1: Replicate and scale social lending . . . . .	15
Growth Pathway 2: Innovate new financing products beyond short-term export trade finance . . . . .	22
Growth Pathway 3: Finance out-grower schemes . . . . .	25
Growth Pathway 4: Finance through alternate aggregation points . . . . .	28
Growth Pathway 5: Finance direct to farmer . . . . .	31
Next steps: A call to action . . . . .	33
Annex I: Market sizing methodology . . . . .	34
Annex II: Social lending crop/country market selection methodology and findings . . . . .	35
Annex III: Recommended reading list . . . . .	38
Annex IV: List of interviewees . . . . .	39
Annex V: End notes . . . . .	41



# Executive Summary

Smallholder farmers occupy an increasingly important segment of the global agricultural value chain. Multinational buyers increasingly will rely on smallholders to secure their supply of agricultural commodities and to help satisfy consumer sustainability preferences. Donors consider the world's 450 million smallholders a linchpin in poverty-reduction strategies because more than two billion of the world's poorest live in households that depend on agriculture for their livelihood. These smallholders also represent stewards of natural resources that are in need of sustainable management to prevent deforestation and degradation of ecosystems.

But smallholder production, which generally occurs on plots of less than two hectares, is characterized by low yields, low quality, poor linkages, and little access to finance. At an estimated size of \$450 billion, the global demand for smallholder agricultural finance is large—and largely unmet. Impact driven smallholder agricultural lenders such as Root Capital, Oikocredit, and Triodos (referred to in this report as “social lenders”) and local state sources currently satisfy less than two percent of the demand. With \$350 million in disbursements, social lenders are small, but they play a catalytic role in driving financing into untapped markets.

Where deployed, the social lender model has proven successful in meeting smallholder financing needs, improving production, building local markets, and encouraging sustainable management of natural resources. Furthermore, there is evidence that the model can catalyze lending from other sources, such as commercial lenders. The social lender model works through cooperatives or producer organizations, making

it an efficient channel for supplying finance to smallholder farmers. However, because only about 10 percent of the world's smallholders participate in farmers' organizations, social lenders can currently address a small portion of global smallholder demand. Meeting the broader demand will require other approaches tailored to the specific characteristics of each market.

This report identifies five primary growth pathways for deploying investment to address smallholder finance demand: (i) replicate and scale existing financing models, such as the one proven by social lenders; (ii) innovate new financial products beyond short-term export trade finance; (iii) finance out-grower schemes of multinational buyers in captive value chains; (iv) finance through alternate points of aggregation in the value chain; and (v) finance directly to farmers.

Each of the five growth pathways above is discrete and can be pursued independently of the others. However, within each pathway different actors are interdependent, so collaboration is required. **Donors and impact investors** (including bi-lateral and multi-lateral agencies) provide the foundational capital for all five pathways, but their role depends on whether they are focused on scaling proven models or innovating new models. **Multinational buyers** can work with lenders to facilitate financing using purchase contracts as collateral or use their relationships with farmers to originate loans, assess risk, and collect payments. **Commercial lenders** and **social lenders** must decide where to apply resources in order to match their capabilities with the most relevant need and opportunity. This report helps to frame that decision.

# Context and Purpose

Population growth and rising incomes have created unprecedented global demand for food. To satisfy this demand, multinational companies are increasingly relying on a new source: smallholder farms. From Coca-Cola to Cargill, companies are tapping into smallholder value chains to secure a sustainable supply for their products. In response to consumer preferences for ethical and sustainable sourcing, traceability, and quality, companies have also made bold sustainability commitments that implicate smallholder value chains. For instance, Unilever has committed to sustainably source 100 percent of its tea by 2015—an amount that currently represents 12 percent of the world's black tea supply.<sup>1</sup>

As a result, the world's 450 million smallholder farmers,<sup>2</sup> most of them in Africa, Asia, and Latin America, occupy an increasingly important segment of the global food market. They present a compelling opportunity for buyers, lenders, and other actors in the agricultural value chain. But tapping the smallholder opportunity will require addressing many obstacles.

The chief obstacle is perhaps the large—and largely unmet—need for formal value chain finance. Over the past decade, impact driven smallholder agricultural lenders such as Root Capital have pioneered models for lending to smallholders through producer organizations. Increased access to finance combined with support from technical assistance organizations has increased smallholder productivity. Furthermore, commercial banks and multinational buyers have experimented with models to provide financing to smallholder farmers who are tightly integrated into sourcing value chains. These models have been successful, but they currently reach only a tiny portion of smallholder finance demand.

This report examines the scale, scope, and need for smallholder financing, with a view to expanding financing for smallholder farmers and better incorporating them into more formal value chains. In mapping pathways to growth, this report explains the roles different actors

## BOX 1: A NOTE ON METHODOLOGY

This study examined the smallholder finance market from multiple perspectives. Research began by interviewing impact driven smallholder agricultural lenders to assess their existing asset base within the broader global agricultural finance market. The team next surveyed crops and country markets for smallholder financing and identified the most promising, based on accessibility and attractiveness (see Annex II for the detailed analysis). Separately, the team examined five crop-country markets, chosen to represent a mix of financial maturity level, geography, and crop characteristics. The markets included:

- Coffee in Peru
- Cocoa in Indonesia
- Dairy in Colombia
- Maize in Kenya
- Rice in Nigeria

Based on learnings in this micro-assessment of five crop-country markets, the team extrapolated an estimate of the global demand for smallholder financing (approximately \$450 billion). The figure is a directional estimate, not an exhaustive one.

The team interviewed 15 individuals involved in global buying of agriculture commodities to understand how they engage smallholder farmers and their outlook on sourcing needs. Direct interviews were accompanied by an exhaustive review of annual reports and public information from the 20 top multinational buyers of the 10 largest smallholder-dominated commodities. In addition, the team conducted a wide-ranging literature review, relying especially on data from the UN's Food and Agriculture Organization (FAO), Calvin Miller and Linda Jone's *Agriculture Value Chain Finance*, and reports from various organizations involved in technical assistance, such as TechnoServe and USAID.

Although the research focused on financing models of impact driven smallholder agricultural lenders and multinational buyers, the team quickly realized that the majority of the world's smallholders who are involved in production for local trade are not aggregated and cannot be reached by these two types of actors. Thus, the report includes a brief discussion on alternate pathways to reach non-aggregated farmers (included in the sections on growth pathways 4 and 5); however the research on this topic is not exhaustive.

A list of recommended sources for additional reading is in Annex III.

can play to catalyze a sustainable agricultural finance industry. These actors include:

- **Multinational buyers** keen on expanding and protecting their value chains, improving quality, increasing productivity, and meeting sustainability commitments;
- **Commercial lenders**, for whom smallholder finance presents a frontier market opportunity for themselves and their corporate clients with emerging models and vast potential for expansion;
- **Impact driven smallholder agricultural lenders (i.e., social lenders)** interested in scaling, replicating, and growing a model they have pioneered and proven, which is based on lending to producer organizations; and
- **Donors, impact investors, and technical assistance providers**, who consider smallholder productivity as key to raising living standards, promoting equity and better stewardship of the land, and increasing food security.

This report is based on interviews with 65 experts, secondary research, and five in-depth case studies. It includes directional estimates of the size of the market for smallholder agricultural finance. It provides a strategic framing of certain crop and market characteristics, as well as a fact base on banks, financial institutions, companies, and non-profits that are developing solutions for smallholder agriculture financing. However, this report is neither a detailed catalog of financing models and approaches, nor an exhaustive database of financing needs. Rather, it is a guide to help relevant actors decide how to deploy their respective capabilities and resources to the most relevant need and opportunity.

## BOX 2: DEFINITIONS OF KEY TERMS

**Addressable market** – The share of the *total market* that can currently be reached by deploying additional capital through existing social lending models; social lenders are currently limited by aggregation points in the value chain (e.g., producer organizations) and by their ability to provide primarily short-term trade financing

**Aggregation point** – A point in a value chain that touches groups of smallholder farmers either directly (e.g., producer organizations or cooperatives) or indirectly through relationships (e.g., a buyer with contracts with many individual farmers); aggregation points increase the efficiency of provision of financing

**Horizon market** – Market opportunities that can be reached by expanding to new crops, geographies, products, or channels

**Long-term financing** – Financing with a term of more than one year (typically for renovation or equipment)

**Market** – Unless otherwise specified, “market” refers to financing for smallholder farmers

**Out-grower scheme** – An arrangement in which companies ensure supply of agriculture product through formal or informal contracts with individual farmers or groups of farmers

**Short-term financing** – Financing with a term of less than one year (typically for inputs, harvest, trade, and export)

**Smallholder farmers (producers)** – Although it varies by market, the analysis in this report defines smallholders as farmers cultivating less than two hectares

**Social lending** – Impact driven smallholder agricultural lending that is primarily driven by social and environmental intent to support smallholder farmers, likely with lower than risk-adjusted net market returns

**Supply** – Unless otherwise specified, “supply” refers to sources of financing for smallholder farmers

**Sustainable** – Economically sustainable without negative social or environmental impact, but not necessarily defined by a certification process

**Total market** – The total market demand for financing by smallholder farmers; only includes farmers that produce a tradable surplus (i.e., does not include on-farm consumption)

**Upstream** – The first set of activities in a value chain (e.g., production), as juxtaposed with downstream (e.g., marketing and export) activities

**Value chain** – The sequence of activities to turn raw input into finished output; in the case of agriculture, the value chain may include (but is not limited to) input provision, production, processing, transport, storage, marketing, and export

These definitions are intended to clarify the use of terms within this report, and not as a statement on their broader meaning.

# The Need and the Market Opportunity

Growing global demand for agriculture commodities, along with consumer preferences, have driven leading buyers to increase engagement with smallholder farmers. Meanwhile, renewed donor attention makes agricultural investment a timely opportunity for buyers and investors. Still, the smallholder financing market is in its early stages and is undeveloped, fragmented, and undercapitalized. A directional estimate of smallholder demand for financing suggests the market could be as large as \$450 billion, the vast majority of which is unmet.

**World demographic trends point to increased global appetites.** The global population continues to grow and is expected to reach 7.5 billion by 2020.<sup>3</sup> Most population growth is occurring in developing regions. In emerging markets, such as India, China, and Brazil, the middle class is growing.

Population growth and an emerging middle class translate to increased global demand for food. By 2018, food consumption worldwide is expected to increase by nearly 30 percent over 2005 figures.<sup>4</sup> In emerging markets, there

is increased demand for non-staple crops such as cashews, tree nuts, chocolate, and coffee.

**Cognizant of population pressures on food supply and the environment, donors have renewed their commitment to agriculture funding.** Agriculture has direct effects on foreign-aid donor priorities such as global food supply, livelihoods, and environmental stewardship. Agricultural aid accounts for an increasing share of Official Development Assistance (ODA). From 2005 to 2010, the amount of ODA devoted to agriculture grew

19 percent. Its growth rate easily outstripped both the previous five-year growth rate in agricultural assistance (five percent) and the growth in ODA overall (see figure 2).<sup>5</sup>

Relatedly, the amount of private financing available for agribusiness has increased. Agribusiness funds in Africa had up to \$2 billion in assets under management and fundraising in 2009.<sup>6</sup> The growing donor and investor focus on agriculture has resulted

FIGURE 1: POPULATION, FOOD CONSUMPTION AND AGRIBUSINESS INVESTMENT

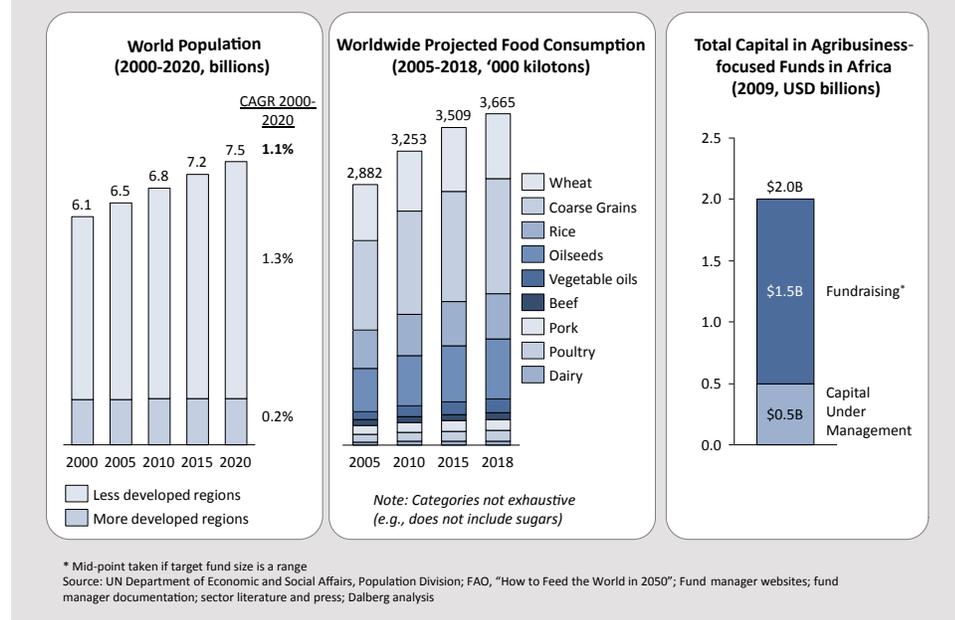
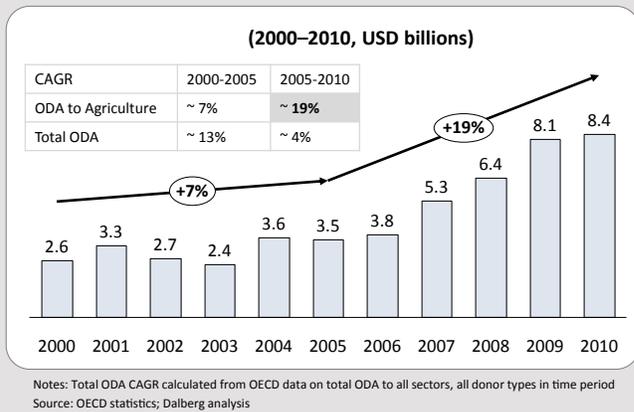


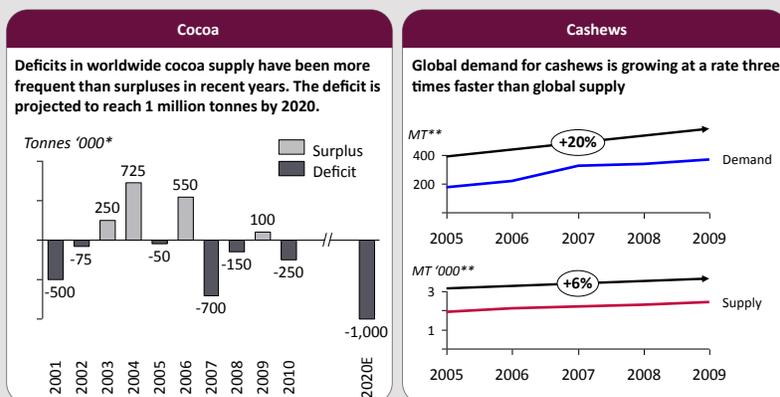
FIGURE 2: **OFFICIAL DEVELOPMENT ASSISTANCE (ODA) COMMITMENT TO AGRICULTURE**



in increased technical assistance to support on-farm productivity and producer organization formation—creating a more conducive environment for smallholder financing.

Still, demand is already outstripping supply in several smallholder-dominated cash crops. Cocoa consumption has grown steadily over the past decade, driven by increased consumption in emerging markets. But worldwide production has fluctuated over the past five years and in many countries has reached a plateau. As a result, a large cocoa deficit is expected by 2020 (see figure 3).<sup>7</sup>

FIGURE 3: **SUPPLY AND DEMAND FOR COCOA AND CASHEWS**



\* Based on approximate calculations  
\*\* Scale is different because demand is measured in processed kernel whereas supply is measured in raw cashew nuts  
Source: "The World Cocoa Economy: Past and Present" International Cocoa Organization, September 2010; World Cocoa Foundation compiled report May 2010; FAO data; Red River Foods report 2010; ACA Strategy document 2010; Bloomberg

Similar trends appear in the cashew market, another smallholder-dominated cash crop. Global demand for cashews is growing three times faster than global supply. Consumers in China, India, and other emerging markets are driving the growth in cashew demand.

**To meet increased demand, buyers are cultivating smallholder sources.** Conventional commercial agricultural methods, such as plantation methods, have reached productivity plateaus in some crop areas (e.g., maize and rice). Other crops are grown almost entirely by smallholder farmers (e.g., cocoa). Therefore, many buyers consider smallholder sourcing not just an alternative, but an imperative for securing supply. Smallholder production provides an avenue for buyers to diversify supply, increase quality and production, and promote loyalty in their suppliers. Already, they are engaging with smallholders directly and experimenting with new models for smallholder financing and sustainability.

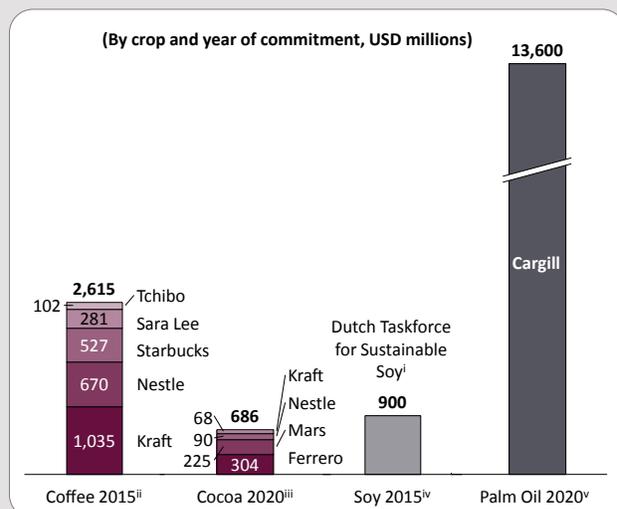
Preferences of consumers in developed countries for sustainably sourced foods, such as Fair Trade or organics, have also played a role in incentivizing sustainable sourcing. The examples are many:

- Cargill, one of the four major traders of palm oil, has committed to source all of it sustainably by 2020.<sup>8</sup>
- The top five chocolate manufacturers have made commitments to sustainable cocoa.<sup>9</sup>
- Starbucks committed to source all of its coffee through C.A.F.E., Fair Trade, or another program by 2015.<sup>10</sup>

Meeting these sustainability commitments will require a dramatic expansion in certified (e.g., Fair Trade or organic) supply. In order for chocolate manufacturers to realize their commitments to sustainable cocoa, for instance, supply would have to grow by at least 14 percent annually until 2020.<sup>11</sup> Similarly, commitments

to sustainable coffee would require supply to grow 17 percent annually until 2015.<sup>12</sup> Unless smallholder farmers can bring more sustainable product to market, buyers risk failing to meet their pledges. Smallholder financing models can help farmers reach their potential by increasing quality and yield.

FIGURE 4: PROJECTED MARKET SIZE FOR SUSTAINABLE SOURCING OF SELECTED CROPS



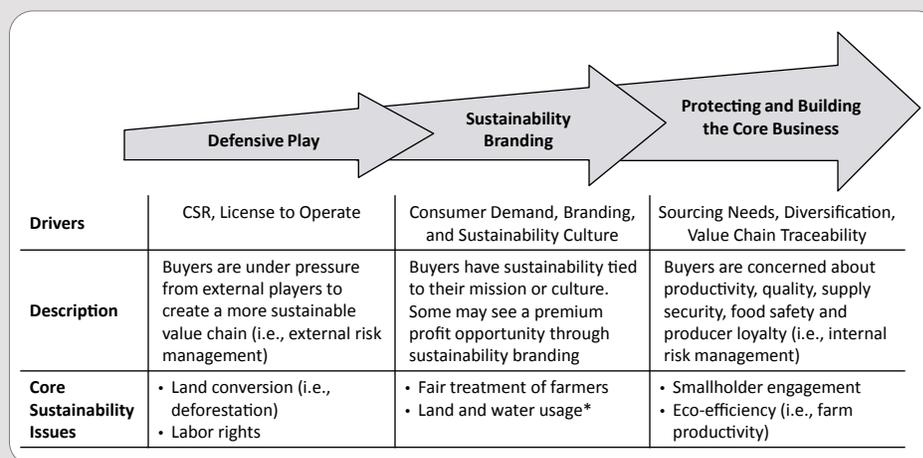
Sources and notes: Data is not comprehensive; Market sizes based on World Bank-projected commodity prices; (i) Comprised of soy industry players that account for 90% of Dutch soy market, according to IDH, the Dutch Sustainable Trade Initiative; (ii) public commitments of buyers; (iii) Assumes Kraft and Nestle maintain the level of their 2012 commitments in 2020; (iv) Round Table on Responsible Soy; (v) Rainforest Action Network and Cargill company website; Dalberg analysis

The world’s 450 million smallholder farms could help feed the world, but most smallholders face poor market linkages and many barriers to improving productivity.

Despite some variation, the typical smallholder is poorly linked to markets and has minimal, if any, access to credit. Smallholder farming practices are not productive because smallholders typically lack access to resources for optimal inputs, such as high-performing seeds, fertilizer, irrigation, and machinery. Most rely on manual family labor.

Small plots and low productivity leave smallholders more vulnerable to risk than large farmers, who can better diversify their crops and spread capital improvements over larger areas. Moreover, smallholder power to negotiate prices is limited, in part because of information asymmetries. Smallholders might overcome these impediments through producer organizations, but most smallholders are dispersed and non-aggregated.

FIGURE 5: BUYER MOTIVES FOR SUSTAINABLE SOURCING



\* Refers to quantity used as well as treatment of soil and water  
Source: Interviews with buyers, company websites; Dalberg analysis

**The vast majority of smallholders lack access to finance for a variety of reasons, often interrelated.**

Smallholders typically lack financial literacy. Poorly defined property rights often prevent the use of cultivated land as collateral. The cost of credit in developing countries is high, especially the cost of longer-term credit appropriate to capital investments. Without access to credit, most smallholders are confined to sub-optimal inputs and methods, and therefore to low productivity.

**Smallholder farming methods often turn to survival tactics that degrade the ecosystems farmers depend on.** Constrained by low productivity and an inability to invest in their property, smallholders sometimes resort to shorter-term measures such as illegal logging, slash-and-burn agriculture, and intensive monoculture that impairs the viability of the ecosystems they depend on.

**Access to appropriate credit could empower smallholders to help meet the growing global demand for food—while improving smallholder livelihoods, safeguarding the environment, and spreading benefits throughout the value chain.**

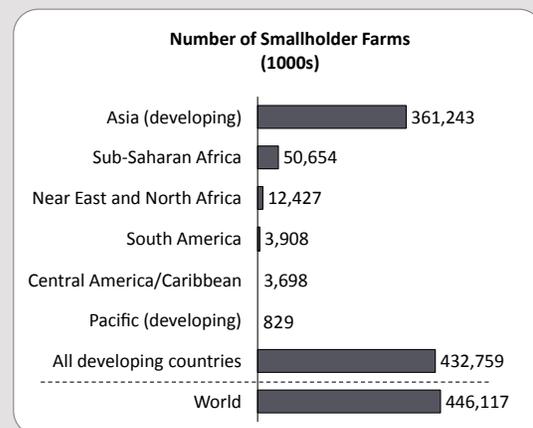
Access to credit allows smallholders to participate on more equal footing with larger commercial enterprises and therefore gain better prices for their yields. Farmers who produce more consistently at higher yields with better quality will reduce upstream risks for buyers and other value chain actors. By increasing productivity, smallholders can play an important role in meeting the demand for commodities in local and global markets.

Belonging to a producer organization is one way that smallholders can access finance, certifications, and technical assistance, and although the smallholder's input costs increase, so do his prices, yields, productivity, and profits. An example constructed from data provided by lenders, buyers, and technical assistance providers in Peru illustrates how.

### BOX 3: SMALLHOLDER SNAPSHOT

In the absence of a global definition of “smallholder,” this analysis considers a smallholder a farmer who cultivates less than two hectares. By this definition, there are approximately 450 million smallholders worldwide.<sup>13</sup> Annual smallholder income varies from about \$170 to \$570 per year.<sup>14</sup> Many smallholders farm for subsistence only; some trade locally, but less than 10 percent are currently incorporated into export value chains.<sup>15</sup>

FIGURE 6: GLOBAL DISPERSION OF SMALLHOLDER FARMERS



Source: World Census of Agriculture, FAO and Rural Population, development and the Environment 2007, UNDESA

By joining a cooperative, a Peruvian coffee farmer can get her coffee certified as Fair Trade, and thereby earn a 33 percent price premium. She can access pre-harvest loans from the cooperative, and is also eligible for loans to rehabilitate coffee plants under a new government program. Her input costs (for plant depreciation and interest) increase, but her yields increase by 67 percent. The end result is a \$1500 profit on revenues of \$8000, compared with a non-aggregated farmer, who profits \$100 on revenues of \$3600 (see figure 7).

**A directional estimate suggests the total demand for smallholder financing may be \$450 billion.** This estimate is based on a sample of select regions and crops, and was derived using the following data points (see Annex I for a description of market sizing estimation methodologies):

- There are approximately 450 million smallholder farms.<sup>16</sup>
- About half of all smallholders (225 million) farm only for subsistence, and therefore are not included as part of the market estimate for financing.<sup>17</sup> However, additional technical assistance coupled

with access to inputs, markets and finance could bring those farmers into the fold and increase the overall size of the market for financing.

- The 225 million smallholders who sell and trade each require approximately \$1000 short-term financing<sup>18</sup> and \$1000 in long-term financing amortized over multiple years.<sup>19</sup>
- Therefore, a directional estimate suggests smallholder demand for short-term financing amounts to \$225 billion, and smallholder demand for long-term financing amounts to \$225 billion.

**This \$450 billion market demand exhibits much variation in features such as crop characteristics, aggregation points, and value chain power dynamics, and cannot be addressed with a single strategy.** The market can be classified into four typologies, each with different implications for how to address the demand for financing (see figure 8). Of particular note, the most successful models for smallholder financing require aggregating farmers into producer organizations, but the vast majority of smallholders are non-aggregated.

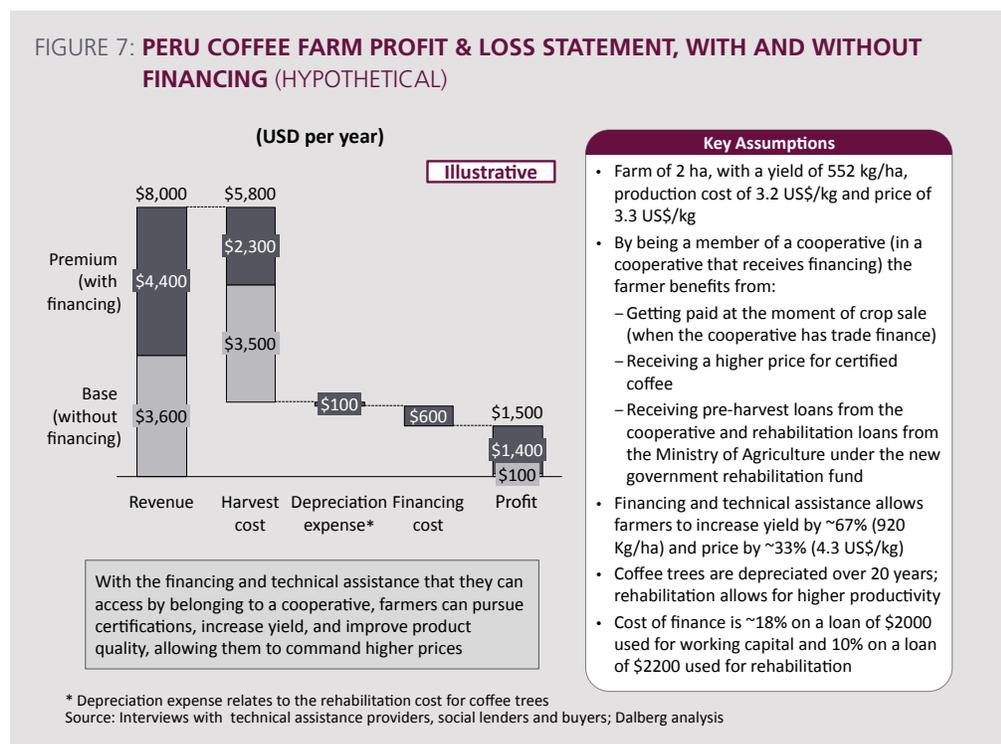


FIGURE 8: **FOUR TYPOLOGIES OF AGRICULTURAL VALUE CHAINS**

Value Chain Typology	A) Exportable cash crop	B) Captive global buyer value chain	C) Organized local staple	D) Un-organized local staple
<b>Aggregation Point</b>	Producer organization (e.g., cooperatives or associations)	Contract or out-grower organization (e.g., processor or buyer)	Warehouses or local traders	No Aggregation
<b>Value Chain Power</b>	Supplier power (at producer organization)	Buyer power	Light buyer power (or government regulated)	None (likely regulated by government)
<b>% of farmers</b>	Less than 10% of farmers are in typology A or B*		Vast majority are in typology C or D	
<b>Market Characteristics</b>	<ul style="list-style-type: none"> <li>• Export</li> <li>• No alternative market</li> </ul>	<ul style="list-style-type: none"> <li>• Export</li> </ul>	<ul style="list-style-type: none"> <li>• Organized local market</li> </ul>	<ul style="list-style-type: none"> <li>• Limited formal markets</li> </ul>
<b>Crop Characteristics</b>	<ul style="list-style-type: none"> <li>• Price incentives for quality</li> </ul>	<ul style="list-style-type: none"> <li>• May be perishable post-harvest</li> </ul>	<ul style="list-style-type: none"> <li>• Durable post-harvest</li> </ul>	<ul style="list-style-type: none"> <li>• No price incentive for quality</li> </ul>
<b>Examples</b>	Coffee, Cocoa	Fruit & Vegetables, Cotton, Dairy	Tree nuts (in India), Maize (in Kenya)	Rice (in Nigeria)
<b>Financing Models</b>	Direct to producer orgs. (e.g., social or commercial lending)	Internal value chain financing (e.g., through buyer or processor)	Warehouse financing or local trader financing	Agriculture microfinance

\* Estimated figure based on average ratio of agriculture export value to production value in select countries (FAO Stat)  
 Note: The chart above does not include farmers that produce primarily for on-farm consumption (i.e., only includes traded crops)  
 Source: Interviews with social lenders and technical assistance providers; FAO Stat; Dalberg analysis

# Addressing the Demand

Impact driven smallholder agricultural lenders (i.e., social lenders) have established a successful model for providing short-term export trade financing to producer organizations and agricultural businesses that reach smallholder farmers. Given that only 10 percent of smallholders belong to producer organizations, social lenders could currently address \$22 billion of the short-term financing demand. One pathway to meeting smallholder finance needs is simply to replicate, scale, and build on the current trade financing model. A second pathway is to expand on the work of some social lenders who have begun to address other financing needs, such as longer-term equipment and rehabilitation financing. Other pathways to growth include financing out-grower schemes through buyer-lender partnerships, financing through alternative aggregation points, and financing farmers directly. The efficiency of capital deployed for each pathway depends on the cost of developing models, acquiring and serving customers, and managing risk.

## BOX 4: SOCIAL LENDING AND IMPACT INVESTING

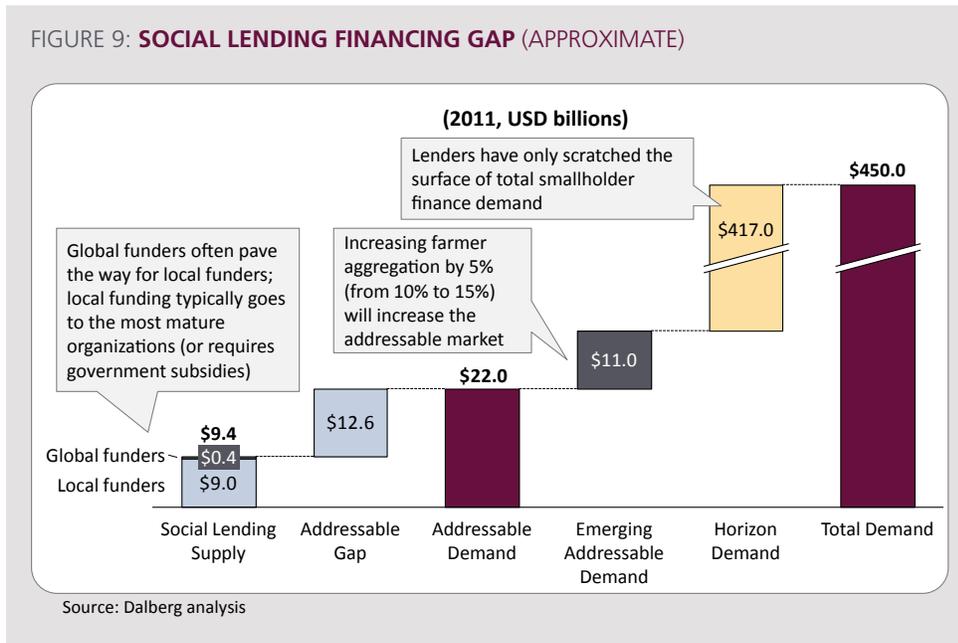
Impact driven smallholder agricultural lending (referred to in this report as “social lending”) can be viewed as a subset of impact investing, which seeks a combination of market returns and social impact. Impact investors generally accept lower-than-market rates of return in exchange for achieving social or environmental goals not easily quantified by the market. Microfinance institutions are also a form of social lending, but in this report, the term is used to refer to smallholder agricultural lenders such as Root Capital, Oikocredit, and Triodos. In agriculture, social lenders focus primarily upstream, on producer organizations and small and growing businesses that engage smallholder farmers. Social lenders seek to improve livelihoods and environmental stewardship through better access to finance in the value chain.

**Over the past decade, social lenders have pioneered and proven an effective model for financing smallholder farmers.** The social lending model in agriculture focuses on producer organizations. By working directly with producer organizations and other value chain actors, social lenders have been able to assess risk and evaluate collateral in novel ways that open up new avenues of financing for smallholders. Furthermore, social lenders have been able to catalyze additional sources of funding from commercial lending institutions.

**However, the social lending model has two important limits.** First, it requires aggregating farmers into producer organizations or working with existing organizations, but only about 10 percent of smallholders currently belong to producer organizations.<sup>20</sup> Second, 90 percent of existing social lending is for short-term export trade finance,<sup>21</sup> but smallholders and producer organizations have comparable needs for long-term finance. As discussed in the previous section, the estimated global demand for short-term financing amounts to \$225 billion. Given that only 10 percent of smallholders belong to producer organizations, social lenders could currently address \$22 billion of the demand.

**Although the limits of the social lending model constrain its addressable market to \$22 billion, there is still ample room to scale and replicate the model.** Disbursements from global agriculture social lenders totaled \$354 million in 2011, with seven investors providing 90 percent of smallholder financing.<sup>22</sup> Local lending, primarily from government and state bank programs, provided another estimated \$5 to \$9 billion.<sup>23</sup> This still leaves up to \$13 billion in smallholder finance demand that social lenders could potentially meet, indicating significant room to expand the social lender model. This market will grow as more farmers are aggregated into producer organizations (see figure 9).

FIGURE 9: **SOCIAL LENDING FINANCING GAP (APPROXIMATE)**



**Beyond the market currently addressable by social lenders lies a frontier area of smallholder finance demand of hundreds of billions of dollars.** Although this segment of the smallholder market is more difficult to reach, investors and other actors should consider investments into the development of the broader segment for several reasons:

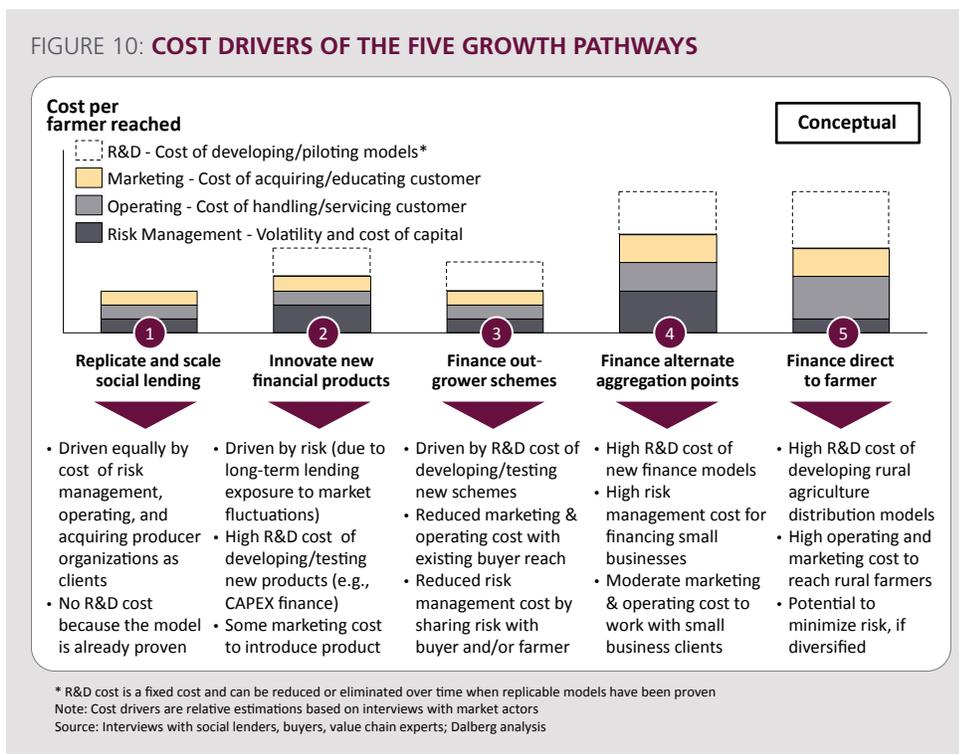
- (i) The vast majority of smallholders cannot be reached by the current social lending model because they are not aggregated into producer organizations.
- (ii) Actors involved in smallholder finance—social lenders, commercial banks, multinational buyers, microfinance institutions, impact investors, donors, and many others—have different capabilities and preferences that lend themselves to different approaches.
- (iii) While social lenders still have ample room to expand their model, it will likely eventually reach a plateau once investors capture the most easily accessible opportunities. Actors in smallholder finance should start thinking now about how to go beyond the model of short-term trade financing for farmer organizations.

The remainder of this report details five distinct strategies, or “growth pathways,” for deploying investment that meets smallholder finance demand: (i) replicating and scaling existing social lending financing models, (ii) innovating new financial products beyond short-term export trade finance, (iii) financing through out-grower schemes, (iv) financing through alternate points of aggregation, and (v) financing directly to farmers. These pathways map to particular value chain typologies, geographic focus, and cost structures. In particular, the efficiency of capital varies for each market pathway, because each involves a particular mix of the following costs:

- R & D costs, for developing and piloting models
- Marketing costs, for acquiring and educating customers
- Operating costs, for handling and servicing customers
- Risk management costs, accounting for volatility and the cost of capital

Each of the five growth pathways are introduced briefly below and discussed in additional detail through the remainder of this report.

FIGURE 10: COST DRIVERS OF THE FIVE GROWTH PATHWAYS



### GROWTH PATHWAY 1: REPLICATE AND SCALE SOCIAL LENDING

Social lenders can continue to expand their existing model of creating and supporting producer organizations and providing short-term trade finance to them. Social lending is targeted toward exportable cash-crop value chains characterized by high levels of smallholder aggregation into producer organizations. To choose markets to replicate and scale, social lenders can expand to new crops in geographic areas they already serve. Inversely, they can expand to new geographic areas that produce crops with which they have experience. The next section details promising geographies and crop markets for social lenders.

This growth pathway is driven by the marketing cost of increasing financial literacy and creating and acquiring producer organizations as clients. Risk management and operating costs are also relevant, but because this model is well established, the cost of R&D is negligible.

### GROWTH PATHWAY 2: INNOVATE NEW FINANCIAL PRODUCTS BEYOND SHORT-TERM EXPORT TRADE FINANCE

Building on the social lending model, this pathway involves social lenders, smallholders in producer organizations, and exportable cash-crop value chains. Currently, social lenders primarily provide short-term trade financing for producer organizations. Through product innovation, social lenders could expand to meet other financing needs, such as working capital, longer-term financing of equipment and tree renovation, and on-lending schemes for financing individual organization members. Some social lenders have already begun to experiment with these products.

This growth pathway is driven by high risk-management costs that stem from long-term lending exposure to market fluctuations. It also involves high R&D costs for developing and testing new products. Because new financial products would be marketed to existing clients, the cost of acquiring customers is small, but there is some cost associated with introducing a new product to customers.

### GROWTH PATHWAY 3: FINANCE OUT-GROWER SCHEMES OF MULTINATIONAL BUYERS IN CAPTIVE VALUE CHAINS

Many multinational buyers have captive value chains organized around out-grower schemes that involve production contracts with farmers. These captive value chains can be contrasted with social lender value chains, in which producer groups are not necessarily contractually bound to a particular buyer beyond each individual transaction. Commercial lenders (and social lenders to a lesser extent) could provide finance to smallholders through these out-grower schemes, focusing on markets where buyers already provide finance or technical assistance to smallholders.

This growth pathway is driven by the R&D cost of developing and testing new out-grower schemes. By using existing buyer relationships with farmers, marketing and operating costs can be kept relatively low. Lenders can reduce risk-management costs by sharing risk with buyers and, possibly, farmers.

### GROWTH PATHWAY 4: FINANCE ALTERNATE POINTS OF AGGREGATION

Aggregating farmers allows easier penetration of finance supply, but less than 10 percent of smallholder farmers are aggregated in producer or other organizations, especially in domestic value chains for local staples. Financing for these smallholders could be channeled through alternate points of aggregation in the value chain, such as warehouses, procurement networks, and input providers.

This growth pathway is one of the most expensive on a per-farmer basis, because it involves the high

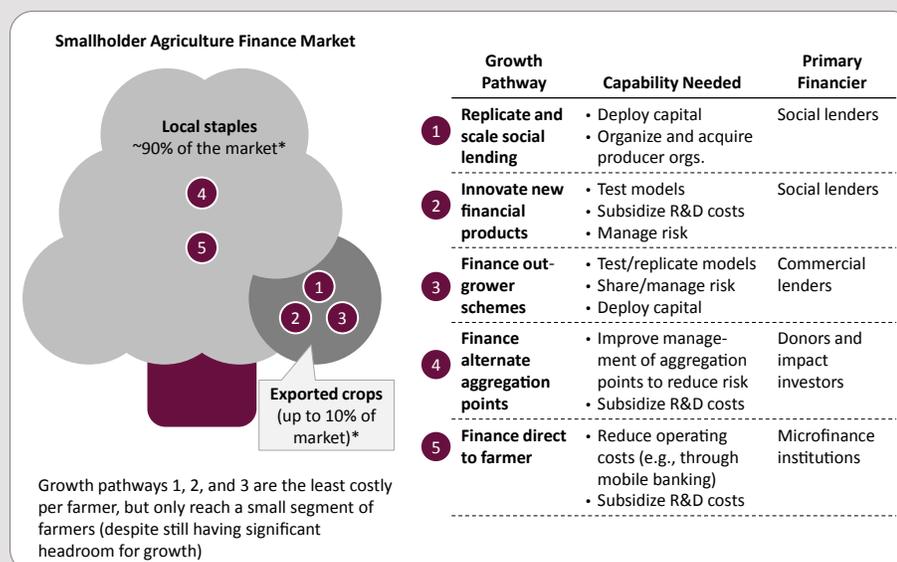
R&D cost of new finance models and the high risk management cost of financing small businesses. It also involves moderate marketing and operating costs related to working with small business clients. Therefore, this is an ideal pathway for donors to support if the social or environmental impacts warrant their attention.

### GROWTH PATHWAY 5: FINANCE DIRECT-TO-FARMER

The value chains of some local staples are unorganized, with dispersed producers and few points of aggregation. Reaching smallholders in these value chains is the last mile of addressing smallholder finance demand. The most promising solution is a variation on microfinance models for agriculture markets, perhaps through mobile banking.

This growth pathway is also expensive on a per-farmer basis, because non-aggregated farmers tend to be isolated and dispersed across rural areas. In rural settings, the R&D costs of developing distribution models are high, as are the costs of marketing and operating. However, this growth pathway has the potential to minimize risk through diversification across a wide client base. Microfinance institutions could play a key role in addressing this demand.

FIGURE 11: SMALLHOLDER FINANCE MARKET SIZE AND GROWTH PATHWAYS



\* Estimated figure based on average ratio of agriculture export value to production value in select countries (FAO Stat)  
Source: FAO Stat, Dalberg analysis

FIGURE 12: PRIMARY ACTORS IN THE FIVE GROWTH PATHWAYS

Actor	1 Replicate and scale social lending	2 Innovate new financial products	3 Finance out-grower schemes	4 Finance alt. aggregation points	5 Finance direct to farmer
Social lenders	Primary financier	Primary financier	✓	✓	
Commercial lenders (transaction team)	✓	✓	✓		
Commercial lenders (corporate ag. team)			Primary financier		
Commercial lenders (SME* team)	✓			✓	
Microfinance institutions**					Primary financier
Multinational buyers	✓		✓		
Technical assistance providers	✓			✓	✓
Donors & Impact Investors (scale-up strategy)	✓		✓		
Donors & Impact Investors (innovation strategy)		✓		Primary financier	✓

\* SME = small, medium enterprise  
 \*\* Microfinance teams are often part of commercial lending organizations  
 Source: Interviews with social lenders, buyers, value chain experts; Dalberg analysis

**Each growth pathway implicates different actors.** Because of the pathways’ differences in cost structures, value chain typologies, geographies, and crops, some types of institutions and entities are better suited than others to be the lead financier for any given pathway (see figure 11).

new models. But there are important roles for a multitude of other actors, including commercial lenders, donors, and multinational buyers, all of whom have different capabilities, timeframes, and risk-return appetites. Leveraging one another’s strengths could prove fruitful (see figure 12).

**As this overview of growth pathways suggests, better industry coordination is required to address the smallholder financing gap.** Growing the industry will require innovation and investment. Social lenders are ideally positioned to lead the way to innovate and test

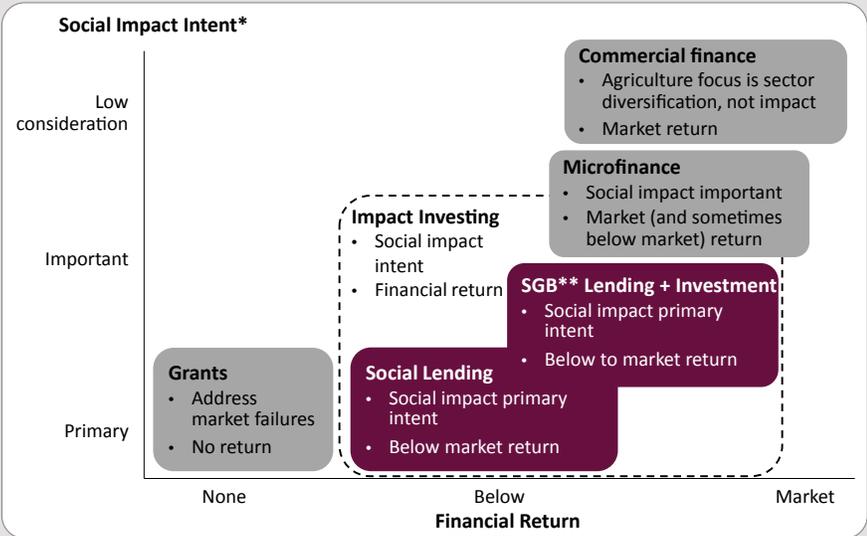
# Growth Pathway 1: Replicate and scale social lending

Social lenders have built an effective model for supplying financing to smallholders, and one pathway to growth is to expand and replicate the model. The current social lending model focuses upstream, on smallholder organizations, and provides primarily short-term trade financing for export. Thus far, social lenders have concentrated on select cash crops in Latin America, such as coffee in Peru, where social lending has proven effective in increasing farmer incomes and catalyzing other finance opportunities for smallholder producer organizations. With \$354 million in disbursements from global social lenders, about \$9 billion from local lenders, and an estimated addressable market of up to \$22 billion, the current model has plenty of room to replicate and scale in both existing and new crop-country markets. Further, increasing smallholder aggregation would expand the addressable market, making it possible to address a larger portion of the \$450 billion total market for smallholder financing.

**Over the past decade, social lenders have built a successful model for improving smallholder livelihoods through financing.** Social lenders in agriculture aim to improve the livelihoods of the rural poor by providing them with credit and connecting them to markets. The theory underlying social lending is that rural poverty in the developing world stems at least partly from the marginalization of smallholders within the formal economy. To integrate smallholders into the formal economy, social lenders help them access credit, basic financial training, and viable markets for their crops. As smallholder productivity and profits increase, livelihoods improve, and smallholders can escape the cycle of poverty. Because smallholders constitute a large proportion of

the world's poor, focusing on smallholder livelihoods could have a great impact on reducing global poverty. Furthermore, because smallholders are stewards of the land, supporting them can have positive benefits for preservation of ecosystems.

FIGURE 13: **BALANCING SOCIAL IMPACT AND FINANCIAL RETURN**



\* "Social impact intent" refers to the primary driver of organizational decision making, not the actual impact on society (i.e., low social impact intent can still have high social impact)  
 \*\* SGB = small, growing business  
 Source: Dalberg analysis

**Social lending models seek a combination of social impact and market returns.** In exchange for impact, social lenders generally accept below market risk-adjusted rates of return and are more tolerant of risk than commercial lenders (see figure 14). Social lenders in agriculture can expect net portfolio returns between zero and five percent,<sup>24</sup> due to high administrative and support costs. Because social lenders work with organizations with little collateral or credit history, their risks are higher than those of commercial lenders. However, social lenders mitigate their risks through

rigorous credit, social, and environmental due diligence, complemented by financial capacity building for clients.

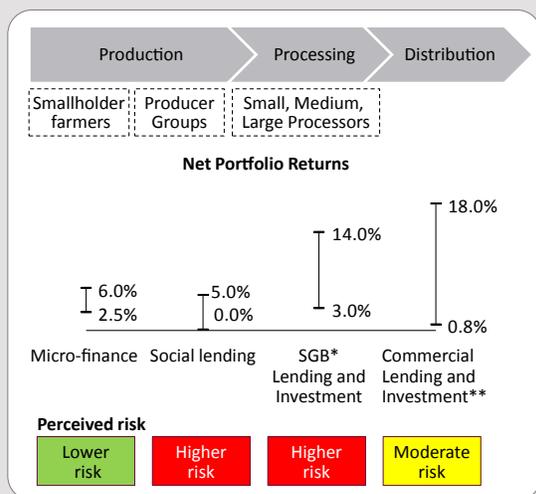
**Current social lending models focus upstream, typically financing smallholder producer organizations with short-term trade finance for export.** Organizations use the loans to purchase raw product from their farmer members and cover costs until the product is sold to a buyer. To manage risk, social lenders use the purchase contract with the buyer as a form of collateral. Repayment of the loan is often sent directly from the buyer to the social lender after the product is delivered. Social lenders often work in tandem with technical assistance providers that conduct training on financial literacy, certification, and farming methods. Technical assistance is usually driven by donor grants (see figure 15).

**Agricultural social lending aims to catalyze broader financing opportunities for smallholder producer organizations.** Over time, as social lenders prove that producer organizations are bankable and that purchase contracts can be used as collateral, other local banks or financial institutions may enter the market. However, the local banks tend to focus on the easiest deals with the largest producer organizations. In this way, social lenders help to catalyze financing for producer organizations from local sources.

**Social lending is currently a small industry that is concentrated among a few global players.** Though the model is replicable, social lending's current footprint is small. In 2011, global social lender disbursements in agriculture totaled \$354 million, with seven lenders

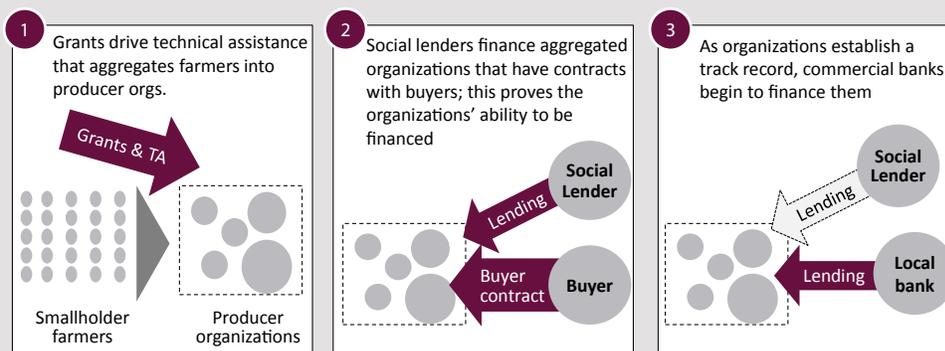
worldwide accounting for 90 percent of that total.<sup>25</sup> Two lenders, Root Capital and Oikocredit, provided nearly \$200 million of total disbursements (see figure 16). In comparison, commercial

FIGURE 14: **NET PORTFOLIO RETURNS FOR DIFFERENT LENDERS IN AGRICULTURE SUPPLY CHAIN FINANCING**



\* SGB = Small, growing business  
 \*\* The wide range is explained by returns from agricultural banks like Agrobanco to private equity funds investing in small enterprises  
 Source: Foreign Capital Investment in Microfinance: Reassessing Financial and Social Returns, CGAP, 2011; SGB funds interviews, 2011; Social lenders interviews, May 2012; <http://www.economagic.com>; Agrobanco annual report; Emerging Market Equity: Private Equity, Public Equity, Risks & Opportunities, IFC, 2012; Dalberg analysis

FIGURE 15: **SOCIAL LENDING THEORY OF CHANGE**



Source: Interviews with social lenders, Dalberg analysis

finance for small and medium agriculture businesses in emerging markets totaled approximately \$170 billion last year, inclusive of urban and peri-urban businesses.<sup>26</sup>

**Social lenders have concentrated on select geographic and crop markets, especially Latin America and coffee.** As figure 17 illustrates, social lenders focused heavily on coffee in 2011, with \$174.5 million in loans disbursed—almost half of total global social lender financing disbursements. Geographically, social lenders targeted Latin America, which received at least \$190 million of overall investment. Moreover, Latin American coffee accounted for the plurality of social lender investment in 2011, receiving investments of at least \$127.1 million.<sup>27</sup>

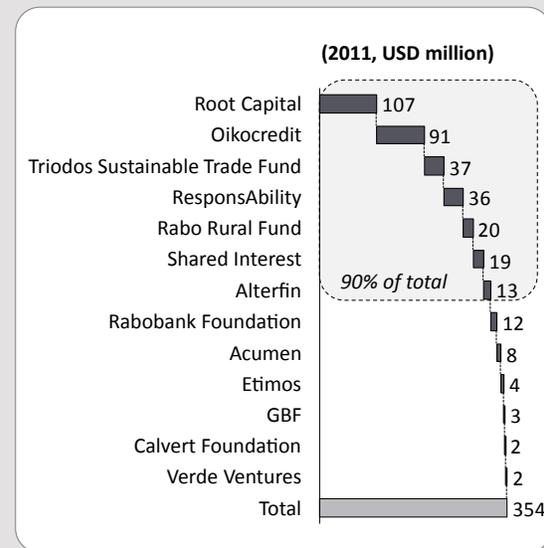
The reasons that social lenders have focused primarily on coffee and on Latin America shed light on the social lending business model. First, social lenders target markets with well managed producer organizations, and many countries in Latin America have a strong historical tradition of farmer cooperatives. In contrast, producer organizations in African markets are often less mature and many have struggled historically with corruption issues.

Second, crops like coffee that already have an existing certification infrastructure—such as Fair Trade or organic—are attractive to social lenders, because the demands of certification usually require organizing farmers and involve some level of due diligence. Additionally, certification is correlated with market demand for the product, which makes these organizations more bankable. Moreover, the coffee market, including its transaction protocols, is well developed and understood.

Although social lenders have focused on coffee, there is still room to grow within the coffee market. Assuming that 70 percent of the world’s 25 million coffee farmers are smallholders, 10 percent of them are aggregated into producer organizations, and each farmer needs approximately \$1000 in short-term lending, the addressable market size

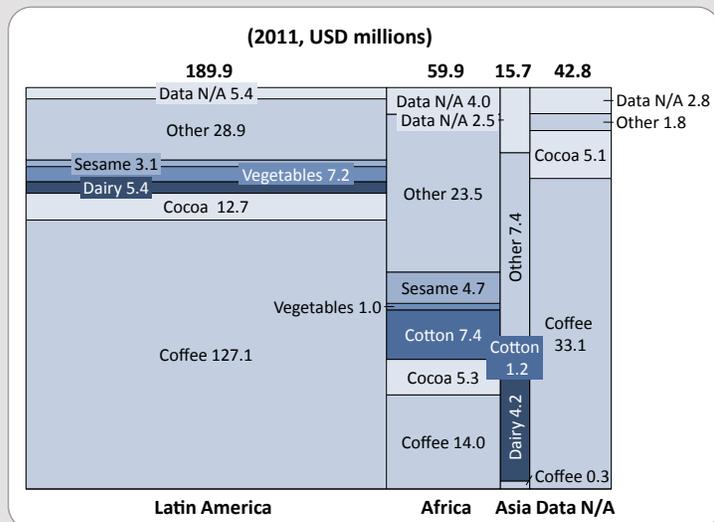
is approximately \$1.7 billion. Social lenders disbursed about \$170 million in 2011, or 10 percent of the total addressable market.

FIGURE 16: **DISBURSEMENTS FROM GLOBAL SOCIAL LENDERS**



Figures report disbursements, not portfolio size (i.e., many lenders have multiple disbursements in a year); only agriculture lending is included in disbursement sizing (i.e., not microfinance, handicrafts, eco-tourism, or energy)  
Source: Annual reports and interviews with social lenders, Dalberg analysis

FIGURE 17: **AGRICULTURE SOCIAL LENDING LANDSCAPE**



“Other” includes 25 crops, such as cashews, artemisin, fruits, honey, sugar, tea, maize, rice, etc.  
“Data N/A” fields indicate segments where data was not available from social lenders  
Social lending to Fair Trade buyers in developed markets is excluded (USD 5.6Mn)  
Social lending to Eastern Europe is excluded (USD 39.7Mn)  
Source: Interviews with social lenders, social lender websites and annual reports, Dalberg analysis

## BOX 5: PERUVIAN COFFEE: A MATURE SOCIAL LENDING MARKET WITH ROOM TO GROW

The story of Peru's smallholder-dominated coffee market illustrates how social lenders leveraged technical assistance and growing global demand for certified coffee to catalyze financing for smallholders. Social lending in Peruvian coffee has become fairly competitive, and most of the country's coffee cooperatives are being financed either by social lenders or by local banks and sometimes both. Further expansion for social lenders will depend on the formation of more cooperatives and the expansion of lending products other than short-term trade financing.

Approximately 70 percent of Peru's 165,000 coffee farmers are smallholders who farm less than five hectares of land.<sup>28</sup> Most lack land titles to prove ownership and therefore have difficulty obtaining credit on their own. Farther downstream in the value chain, the market is concentrated. The country has a few dozen processing businesses, and 10 exporters control 75 percent of the export market.<sup>29</sup> Upstream diffusion and downstream concentration tilt value-chain power dynamics in exporters' favor.

But over the past five years, the number of smallholders that are aggregated in cooperatives has swelled, from approximately five percent to 15 or 20 percent,<sup>30</sup> and the level of aggregation is expected to continue growing. Joining a cooperative enables smallholders not only to negotiate better prices, but also to access financing and continued technical assistance. This support enables smallholders to participate in the certification process, increase yields, and improve quality. With this support, farmers may be able to increase yields by up to 67 percent and obtain prices that are approximately 33 percent higher, subject to market fluctuations.<sup>31</sup>

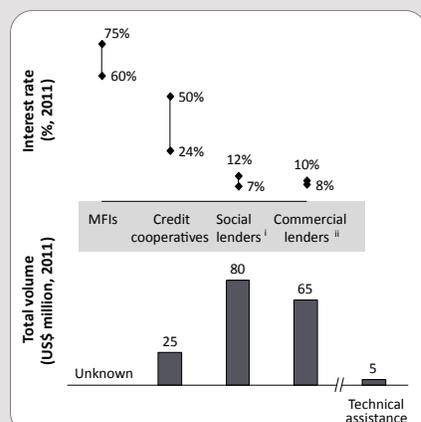
Technical assistance has helped drive the formation and management of smallholder cooperatives. Most technical assistance providers require grant or donor funding, which amounts to about \$4.5 million per year.<sup>32</sup> Technical assistance providers help farmers form cooperatives and improve the capacity of existing organizations so that they can participate in processing and export in order to capture some of the higher profits downstream.

Social lenders dominate the supply of financing for coffee producers in Peru. In 2011, they issued \$80 million in loans to coffee cooperatives at rates significantly more affordable than those of credit cooperatives and microfinance institutions.<sup>33</sup>

More importantly, social lenders have catalyzed other finance opportunities for smallholder organizations. When lending to new organizations without credit histories or collateral, social lenders use buyer contracts as collateral. Successful payment of social loans gives producer organizations a credit history and standing with commercial lenders. Commercial lenders now issue loans to producer organizations at rates comparable to those of social lenders. The Peruvian government recently announced a \$7.5 million fund to rehabilitate small coffee farms,<sup>34</sup> although only farmers in organized cooperatives are eligible for these long-term loans.

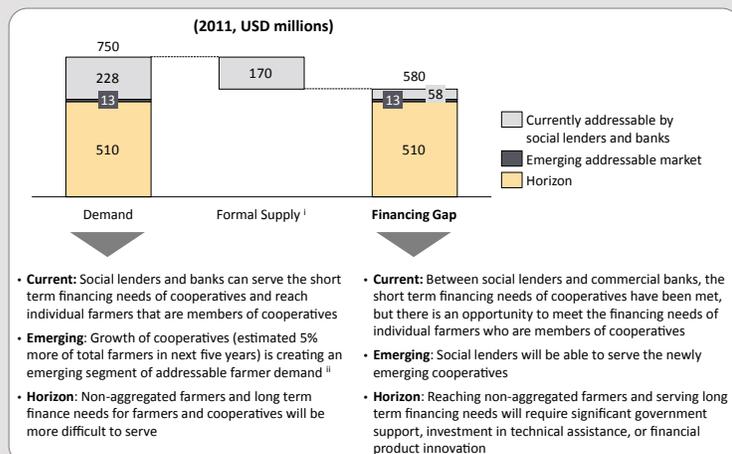
Peru has become a competitive market for social lenders, with the short-term financing needs of cooperatives largely met. But there remains a large financing gap, because the social lending model does not address unorganized smallholders or smallholders' long-term finance needs. Future growth will depend on the formation of new cooperatives or products that meet longer-term financing needs.

FIGURE 18: SUPPLY OF FINANCING FOR PRODUCERS IN PERU



(i) Social lenders in Peru include: Root Capital, Alterfin, ResponsAbility, Rabobank, Shared Interest, Etimos, Verde Ventures and Oikocredit; (ii) Continental (BBVA) and Agrobanco are the main commercial banks that are financing cooperatives. Source: Interviews with cooperatives, buyers and social lenders; Cámara Peruana del Café y Cacao (CPC); Dalberg analysis

FIGURE 19: FINANCING GAP IN PERUVIAN COFFEE (APPROXIMATE)



(i) Formal supply includes commercial lending, social lenders and financing from other formal institutions; microfinance and export financing are not included in the calculations of formal supply (ii) Creation of new cooperatives will increase total demand as that cooperative seeks trade financing and CAPEX (not included in this calculation) Source: Root Capital; Interviews with cooperatives, buyers and social lenders; Cámara Peruana del Café y Cacao (CPC); Dalberg analysis

## BOX 6: **INDONESIAN COCOA**

In contrast, the Indonesian cocoa market presents an example of an emerging opportunity for social lenders. Although the demand for smallholder finance is large, social lenders can currently address less than one percent of it, because very few smallholders in cocoa are organized into producer organizations.

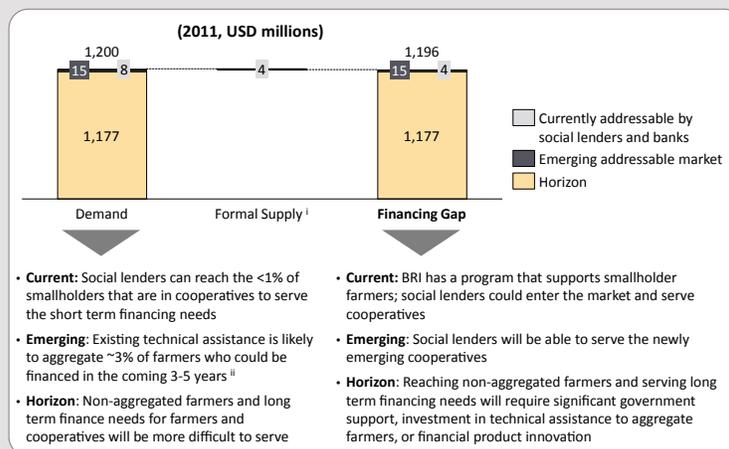
However, global and national trends suggest that the size of the market addressable by social lenders may expand. First, global demand for cocoa is on the rise, and worldwide supply has not been able to meet it consistently. Over the past 10 years, deficits in cocoa supply have been more frequent than surpluses<sup>35</sup> and a substantial cocoa deficit is projected by 2020.<sup>36</sup> Indonesia is well positioned to help fill this gap, because it is already the third-largest cocoa producer in the world, accounting for approximately 15 percent of total supply.<sup>37</sup> This could be especially true if Indonesian farmers had the capacity to produce higher-quality cocoa.

Second, buyers and donor-funded international organizations are investing heavily in technical assistance in Indonesia. Through a public-private partnership worth \$11 million over several years, the technical assistance provider Swisscontact will work with 57,000 cocoa smallholders in new and existing farmer associations.<sup>38</sup> An approximately \$4 million partnership between Mars and ACDI/VOCA, an NGO, will aim to

train farmers and strengthen farm associations.<sup>39</sup> In addition, global buyers such as Nestlé and Cargill are investing millions of dollars in technical assistance, including tree maintenance, plant expertise, and post-harvest techniques.<sup>40</sup>

As more farmers are aggregated into producer organizations, the proportion of finance demand addressable by social lenders will increase. With financing and technical assistance, smallholders could increase their yields by 50 percent and their farm gate prices by 20 percent.<sup>41</sup>

FIGURE 20: **FINANCING GAP IN INDONESIAN COCOA (APPROXIMATE)**



**The social lending model has ample room for growth.** Existing social lenders are significantly under reaching in their target crops and markets, largely due to an undersupply of technical assistance and capital. Disbursements for 2011 were \$354 million, but, as noted earlier, social lenders could currently potentially address up to \$22 billion in smallholder finance demand. This figure is a directional estimate, based on the proportion of smallholders aggregated into producer organizations (about 10 percent)<sup>42</sup> and an approximation of their short-term, trade financing needs (\$1,000 per farm).<sup>43</sup>

**Even after considering local sources of financing, there is a large addressable financing gap.** In markets like coffee in Peru, social lending has reached most of the existing producer organizations, and local commercial banks have followed. However, in markets like cocoa in Indonesia, social lenders have not entered and local sources of financing from government and state bank programs are very small, meeting less than one percent of total smallholder financing demand.<sup>44</sup> Similarly, in the Nigerian rice market, approximately two percent of total demand has been met by local financiers.<sup>45</sup> Assuming that up to two percent of the worldwide demand (\$450 billion) has already been met by local financing sources,

the existing supply of local lending for smallholders is about \$9 billion. With an addressable demand of \$22 billion, there is still a financing gap of approximately \$13 billion for short term lending to aggregated producer organizations.

The deployment of technical assistance will increase the number of producer organizations and further expand social lending's addressable market. For example, increasing farmer aggregation globally by just five percent (from 10 percent to 15 percent) would increase the

addressable market by 50 percent to \$33 billion and reach an additional 11 million smallholder farmers.

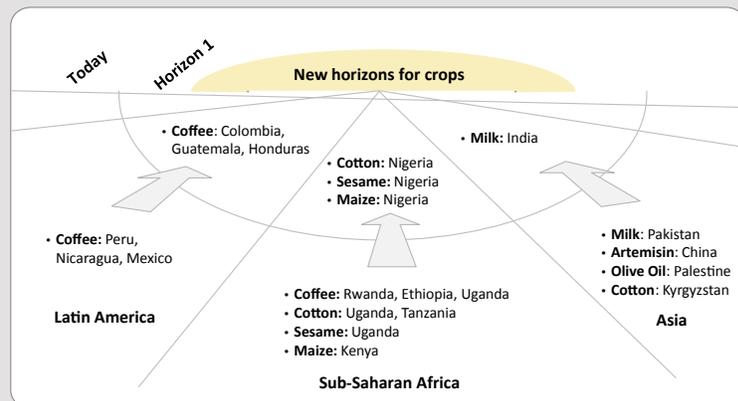
**As certain crop and country markets become competitive, the existing social lending model has two directions for growth:**

- Expand into new countries within existing crops
- Expand into new crops within existing countries

For example, social lenders focused on coffee in Peru could expand operations to Colombia, Guatemala, and Honduras using their existing buyer relationships, downstream value chain knowledge, and financial products. In contrast, they may decide to remain in Peru, but expand to domestic cassava and maize markets using their knowledge of the Peruvian business environment, relationships with cooperatives, and local management offices.

**The crop-markets specified in Figures 21 and 22 were chosen on the basis of their attractiveness and accessibility.** "Attractiveness" considers future market size, based on current crop and regional production and projected forward using past growth rates. "Accessibility" takes into account the presence of smallholders, the level of smallholder aggregation into producer or other organizations, and regional crop margins. The crops and country markets listed as "today" are where social lenders currently have a footprint. The natural expansion path is into a Horizon 1 market that is attractive and accessible and is either in the same crop or the same country as their current footprint. This chart is meant more as a conceptual demonstration than a literal pathway. A detailed explanation of the prioritization methodology, including prioritized crops by region, is in Annex II.

**FIGURE 21: EXPANSION INTO NEW COUNTRIES WITHIN EXISTING CROPS**



See annex for crop/country selection methodology  
Source: Interviews with social lenders, literature review, FAO Stat, Dalberg analysis

**FIGURE 22: EXPANSION INTO NEW CROPS WITHIN EXISTING COUNTRIES**



See annex for crop/country selection methodology  
Source: Interviews with social lenders, literature review, FAO Stat, Dalberg analysis

**Social lenders take the primary role in this growth pathway, but other actors, from commercial lenders to donors, have important roles to play.** In particular, technical assistance providers lay the groundwork necessary to expand the size of the market addressable by social lenders, namely by forming and training smallholder producer organizations. Donors and impact investors (including multi-laterals and bi-laterals) fund technical assistance providers as well as the social lenders themselves, accepting below market returns in exchange for social and environmental impact. Multinational buyers provide the contracts with smallholder organizations that social lenders can use for collateral. Commercial lenders can finance organizations that have a proven track record with social lenders and scale proven financing models.

Finally, local governments can contribute by instituting policies that support formation, management, and access to markets for producer organizations.

**However, even with concerted action from all of these actors, only a small portion of the total market demand can be met.** Expansion of the existing social lending model is limited by its focus on short-term financing needs of aggregated producer organizations. Only 10 percent of social lender portfolios are currently focused on products other than short-term trade finance. Reaching the rest of the market need will require expansion of these other products, as well as alternative distribution models, which are discussed in the subsequent chapters of this report.

# Growth Pathway 2: Innovate new financing products beyond short-term export trade finance

Social lenders have focused on short-term trade finance primarily because it is less risky than other forms of finance, especially in volatile agriculture markets. As such, they do not address the significant long-term finance needs of smallholders and producer organizations, or the working capital needs of individual organization members. The opportunity is large: lending an additional \$500 per farmer in existing producer organizations could increase the social lenders' addressable market by \$11 billion (from \$22 billion to \$33 billion). For smallholders and producer organizations, access to long-term financing would allow for capital expenditures on equipment, rehabilitation, and infrastructure. Examples from the Peruvian coffee industry and Colombian dairy industry illustrate how such capital expenditures could increase yields, production, and quality. Innovating new lending products appropriate to smallholders' needs will require social lenders to take the lead, supported by soft capital from donors and impact investors.

**The model established by social lenders currently focuses primarily on short-term loans of a year or less.** Ninety percent of social lender disbursements in 2011 were short-term trade finance loans where lenders issue short-term loans for producer organizations to purchase product from their members.<sup>46</sup> Repayment is collected when the producer organization sells the product to an end buyer. Because the term is only six to twelve months, lenders can manage the risk of price fluctuations. Furthermore, by using a purchase agreement between a buyer and a producer organization as a form of collateral, social lenders have reasonable certainty about the amount that will be collected at sale.

**Short-term trade finance is relatively low-risk for lenders, but it merely skims the surface of financing needs.** The finance needs of smallholders and producer organizations go well beyond one production cycle, especially if they are to realize sustainable gains in productivity and quality. Smallholders must rehabilitate aging plants, upgrade their tools and equipment, and buy new livestock. Furthermore, as producer organizations try to capture more of the value downstream in processing

and export, they will need longer-term financing of equipment and storage sites.

Certain smallholder-dominated markets have little additional need for trade finance at all. As discussed in the previous section, social lenders have met a large proportion of the currently addressable trade finance needs of coffee cooperatives in Peru. However, an urgent need for coffee plant rehabilitation remains. As the plants age, yields and quality diminish. According to the Junta Nacional del Café, some 70 percent of Peru's coffee plants will need to be rehabilitated, at a cost of \$250 million (see box on Peru coffee).

For dairy producers in Colombia, meanwhile, the milk production cycle lasts only one to two weeks, which means they can readily use a portion of their sales to finance the next production and have minimal need for working capital. But dairy producers need capital improvements, such as refrigeration and higher-grade livestock that necessitate longer-term loans.

Given the risks of extending agricultural credit over a longer term, smallholders and most producer

organizations have even more difficulty accessing long-term finance than accessing trade finance. Most smallholders lack clear title to land or other forms of collateral for long-term commercial loans. They also lack credit histories. Although producer organizations in some markets are increasingly sophisticated, they too face the challenges posed by insufficient collateral and credit history.

**Appropriate long-term lending products present a sizeable opportunity for social lenders.** Assuming that each of the world's 225 million non-subsistence smallholders requires approximately \$1000 in long-term financing, and that 10 percent are aggregated into producer organizations that social lenders can reach, a directional estimate indicates the smallholder market for long-term finance could be \$22 billion (comparable to the size of the market for short-term finance).

**However, tapping into this opportunity presents many challenges for social lenders.** A major obstacle to reaching this opportunity is the cost of managing risk. Long-term lending is exposed to volatility, and agriculture commodity markets are notoriously volatile. A coffee farmer or producer organization that is financed today may have a hard time repaying if commodity prices collapse. Hedging and insurance products to mitigate risks tend to be very expensive. As a consequence, few long-term finance models for smallholders and producer organizations exist, though some social lenders (like Root Capital) are beginning to experiment with them.

**Social lending models for long-term smallholder lending start with producer organizations.** The advantages of working through producer organizations for trade finance also hold for longer-term financing. There are two broad ways that social lenders could use producer organizations as a vehicle for long-term lending. First—and as producer organizations expand downstream into processing, refinement, and export—social lenders could provide investments in equipment, rehabilitation, and infrastructure. Second, social lenders could finance organizations that on-lend to individual farmers.

#### BOX 7: REHABILITATION OF COFFEE TREES IN PERU

The Peruvian government is already working through coffee grower cooperatives to disburse long-term financing for coffee tree rehabilitation. Coffee trees have a productive lifespan of about 20 years, and some 70 percent of Peru's coffee production area needs rehabilitation.<sup>47</sup> Because coffee is one of Peru's main exports, sustainable supply is a national policy issue.

For smallholders, tree rehabilitation presents a long-term financing issue. They need about \$1,100 per hectare to rehabilitate their trees—a sum on par with their annual short-term harvest financing needs.<sup>48</sup> With 115,000 smallholder farmers in Peru,<sup>49</sup> and assuming an average of two hectares per farm, this represents a total financing need of \$250 million. Most smallholders have been unable to finance the rehabilitation; generally, only farmers with more than five hectares have been able to afford or finance it.

With the goal of increasing productivity, the government recently seeded a \$7.5 million fund for smallholders seeking to finance the rehabilitation of their trees. The interest rate on these five-year loans, timed to the depreciation of a coffee plant, is 10 percent. The loans will be administered by Agrobanco, the state-run agricultural lender. To be eligible, smallholders must already participate in a producer organization. However, even with this \$7.5 million fund, there is a large gap to meet the total need of \$250 million.

**To innovate new long-term lending products, social lenders and entrepreneurs must take the lead, with soft capital support.** Creating, testing, and expanding a new product will require donor support in the form of grants or soft capital. Other actors have significant roles to play. Commercial lenders can develop foreign-exchange and price-hedging products that would help producer organizations manage long-term risk. To help investors assess and manage risk, local governments should create mechanisms and processes that increase market transparency and access to information.

## BOX 8: COLOMBIAN DAIRY

Because dairy production cycles are short, most of Colombia's 400,000 smallholder dairy farmers do not have serious cash flow challenges. But they are stuck in a cycle of low production. Productivity is 4.5 liters per cow per day, which is low compared to neighboring countries, such as Peru (8 liters per cow per day) and far below averages achieved in countries like the United States (40 liters per cow per day).<sup>50</sup> The cows they purchase depreciate over the short span of four years. Low productivity leaves smallholders vulnerable, not least because a new U.S. trade agreement could bring lower-priced, higher-quality imports.

Long-term finance could ramp up domestic milk production. In particular, long-term financing would allow smallholders to establish grazing fields and sources of supplementary forage that would improve cow nutrition and milk production. It would enable them to purchase additional cows, including genetically enhanced breeds. As a hypothetical model illustrates, an annual loan of \$4,000 over four years could raise milk production by 50 percent and price by 20 percent.<sup>51</sup>

One of the main obstacles to such lending is that Colombia's dairy industry is largely non-aggregated. With just four percent of small dairy farmers belonging to a cooperative or other producer organization,<sup>52</sup> many smallholders lack access to the benefits of dairy cooperatives, such as training, processing, and access to advantaged lending programs that issue low-rate, long-term loans to smallholders through farmer organizations.

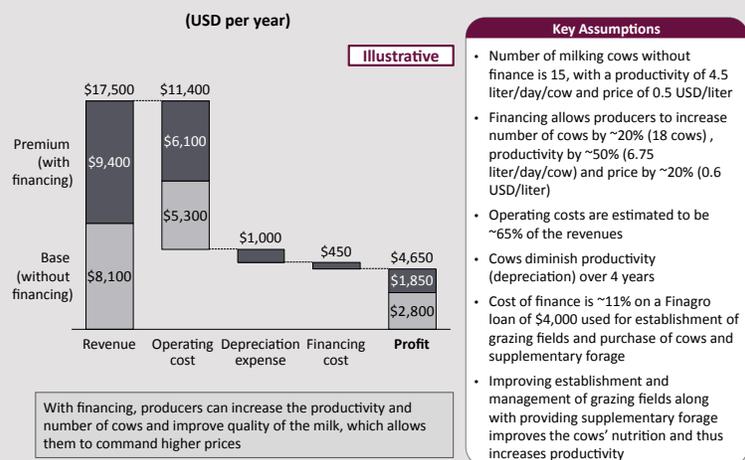
Because of the low level of farmer aggregation within Colombia's dairy industry and the availability of low-interest state loans for smallholders in cooperatives, there is not much room for traditional social lending products. The currently addressable market for social lenders is \$79 million, and has largely been met by the government.<sup>53</sup>

Applying social lending models to Colombia's dairy market will require increasing aggregation of farmers into cooperatives. There is some movement on that score. In 2011, the Ministry of Agriculture invested \$3.5 million

for technical assistance for forming cooperatives and other activities.<sup>54</sup>

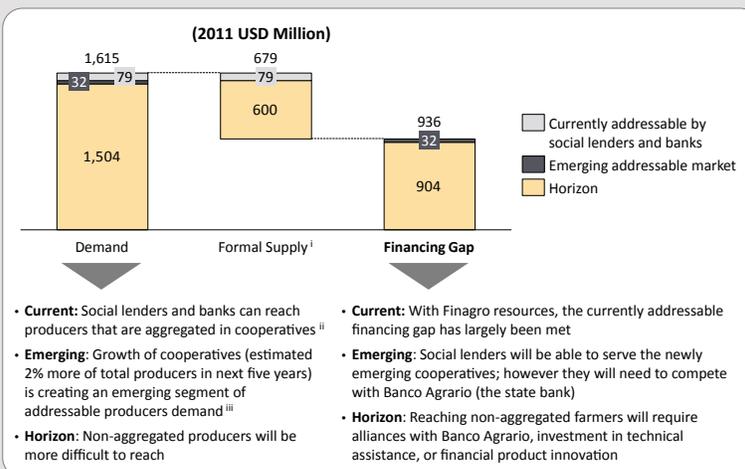
An alternative to increasing aggregation is to replicate lending products that help dairy farmers with capital expenditures. The most prominent existing example is SFA CEBAR, which allows Colombian farmers to use their cows as collateral to raise capital, and, alternatively, to lease cattle that are owned by investors or lenders.<sup>55</sup> Lease payments can be applied against the purchase price of the cow at the end of the term.

FIGURE 23: MILK PRODUCER FARM PROFIT & LOSS STATEMENT, WITH AND WITHOUT FINANCING (HYPOTHETICAL)



There are differences in the strategy to increase productivity between dairy cows and dual purpose cows. Assumptions are based on an average of these two production systems  
Source: Interviews with financial entities and technical assistance providers; Dalberg analysis

FIGURE 24: FINANCING GAP IN COLOMBIAN DAIRY (APPROXIMATE)



(i) Microfinance and local input stores' financing are not included in the calculations of formal supply  
(ii) Social lenders can only penetrate this market if they can meet long term financing needs of farmers and cooperatives  
(iii) Creation of cooperatives will increase total demand as that cooperative seeks CAPEX financing (not included in this calculation)  
Source: Interviews with financial institutions; Dalberg analysis

# Growth Pathway 3: Finance out-grower schemes

Multinational commodity buyers are uniquely positioned to support the financing of smallholder enterprises. They have a powerful, long-term incentive to secure supply; relationships throughout the value chain; and the capacity to experiment with new financing models. Some global buyers already provide finance to smallholders engaged in their out-grower schemes; emerging models include warehouse, in-kind, and direct-to-farmer lending. Formal partnerships with lenders could dramatically expand smallholder access to finance and provide an opportunity for commercial lenders to tap into smallholder demand. More broadly, buyers can support smallholder finance by forming pre-competitive alliances to share information, set standards, and reduce risk.

**With powerful incentives to secure supply and relationships throughout the value chain, multinational buyers are uniquely positioned to participate in smallholder financing.** Mounting pressures on global food supply have prompted buyers to turn toward smallholder commodity production. Buyers seek to diversify, deepen, and protect their supply chains, and engaging smallholders is a strategy for doing so. Thus, sustainable sourcing is increasingly a business supply issue, not merely a branding or marketing strategy.

That said, consumer preferences for sustainability also play a role in buyers' engagement of smallholder farmers. Bold sustainability commitments from buyers in palm oil, cocoa, and coffee underscore an expanding market for smallholder products.

As discussed in earlier sections, social lenders already rely on buyer support in lending to smallholder organizations. Specifically, social lenders use purchase orders or buyer contracts as collateral. But, as this section describes, buyers can support smallholder financing in more direct ways.

**Many multinational buyers already engage smallholders through out-grower schemes.** Out-grower schemes involve captive relationships between a buyer and individual farmers or farmer organizations. Captive relationships include formal contracts as well as informal, but binding agreements. Buyers may include traders, exporters, or other parties, but for the purposes of this report, "buyer" refers to a multinational food company.

**Out-grower schemes provide a platform to support smallholder financing models.** Market knowledge and existing relationships enable buyers to assess risk in the loan origination process. Buyers whose agents regularly visit farmers onsite can monitor risk at a lower incremental cost than banks. Farmers' desire to maintain good relationships with large buyers makes them less likely to default on loans. And because buyers can engage many parties along the value chain, there is potential to spread risk among farmers, buyers, banks, and donors.

Recognizing that lack of access to finance constrains productivity and quality, buyers such as Nestlé, Louis Dreyfus, ADM, and others have begun to experiment with smallholder financing models in their out-grower schemes. There are a variety of possibilities for financing through out-grower schemes. Emerging models include:

- Warehousing for credit
- Direct financing to smallholders
- Serving as the front office for financial institutions that provide loans to smallholders

*Warehousing for credit:* In this model, smallholders deposit their crops in buyer warehouses. In return, buyers issue credit to smallholders. At the end of the term, smallholders have the option to pay back their loan, withdraw the crop, and sell it to another buyer, or to sell to the warehouser-buyer.

*Direct financing to smallholders:* The buyer directly issues loans to farmers who engage in its out-grower schemes. In the absence of collateral, direct financing requires trust and contact between the farmer and the buyer. An out-growing scheme can engender relationships that lead to repayment. The farmer's desire to maintain good relationships with large buyers mitigates the risk of default. Buyers in out-grower schemes often work with farmers already, including site visits and informal technical assistance.

Nestlé, the world's largest seller of milk,<sup>56</sup> finances some 32,000 farmers, mostly dairy producers, through out-growing schemes. Loan size ranges from \$500 to \$50,000, and most are for 18 to 24-month terms, but they can be shorter. The hallmark of these loans is their basis in trust and direct, personal contact. They are delivered by Nestlé staff and managed directly during site visits.<sup>57</sup>

*Serving as the front-office for financial institutions:* This model is similar to direct financing, in that buyers originate, manage, and collect loans to farmers in their out-grower schemes. However, it leverages partnerships with banks or other financial institutions, which provide the capital for loans and the lending products. Partnering with financial institutions allows buyers to take loans off their balance sheets and enables risk-sharing between buyers and lenders.

The Indonesian bank BTPN employs a variation of this model to finance smallholders. It provides lending to farmers in cash or in-kind, usually in the form of inputs. Repayment occurs when the farmer sells their product to a buyer. The buyer deducts the repayment from the farmer's sale price and remits it back to the bank.<sup>58</sup>

**Similar partnerships between buyers and lenders could dramatically expand smallholder access to finance.**

Buyer-lender partnerships would allow lenders to capitalize on buyers' strengths, including relationships with farmers, value chain knowledge, and loan management infrastructure. In addition, lender-buyer

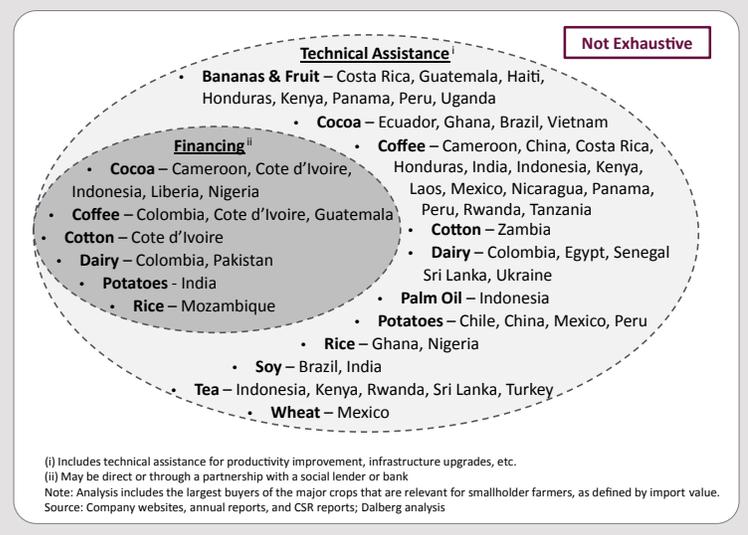
partnerships could permit the allocation of risk among lenders, buyers, and smallholders. Buyers may be willing to shoulder a portion of lending risk in order to cultivate and defend sources of supply against competition.

**Out-growing schemes present a potential point of entry for commercial lenders (or social lenders) to address smallholder demand.** In particular, corporate agriculture teams could leverage their existing relationships with buyers to identify and structure finance programs. Corporate transaction teams could structure risk-sharing arrangements between buyers, lenders, and farmers.

**Attractive markets for lenders include those where buyers are already providing financing and technical assistance to producers.** The lowest-hanging fruit for lenders is to help buyers expand existing finance programs or to take on buyers' loan portfolios. This would allow buyers to free up capital and focus on their core competencies. Where buyers have technical assistance programs in place, lenders could help them incorporate a new finance scheme (see figure 25). With more investment, lenders could help buyers start up new financing and technical assistance programs.

Figure 25 illustrates specific crop-market possibilities for lenders interested in investing in smallholder outgrowing schemes. It is based on annual reports from buyers that work extensively with smallholders, and is not exhaustive.

**FIGURE 25: MARKETS WITH EXISTING MULTINATIONAL BUYER ENGAGEMENT WITH SMALLHOLDER PRODUCERS**



**Buyers and lenders take the lead in this pathway.**

Expanding smallholder finance through out-grower schemes will require lenders to develop lending products for producers, transfer financing schemes off buyers' balance sheets, and create risk-sharing models for buyers, banks, and producers. Commercial lenders are well positioned to roll out these types of models through their existing relationships with buyers, while social lenders can play a supporting role in testing new financing schemes for out-grower models. Buyers must develop new out-grower schemes and leverage relationships and knowledge to originate loans, assess risk, and collect payments. Donors can use guarantees or targeted grants to off-load risk from out-grower schemes.

**Over the long term, developing better out-grower financing models will require continuing investments in industry building.**

Through pre-competitive alliances, buyers are already sharing the knowledge, information, and costs of developing sustainable value chains. Some are investing in public-private partnerships devoted to technical assistance and the formation of producer organizations. Others have invested in impact funds devoted to smallholder finance (see box 9).

**BOX 9: PRECOMPETITIVE BEHAVIOR, BUYER ALLIANCES, AND INDUSTRY INVESTMENT**

Pre-competitive behavior is collaboration in activities outside of the core business. It is driven by an expectation that collaboration will yield greater benefits than unilateral action would.

Over the past decade, buyers have formed industry groups devoted to sourcing. In 2002, Danone, Nestlé, and Unilever founded the Sustainable Agriculture Initiative (SAI), a food industry organization intended to support sustainable agriculture. Currently its membership consists of more than 30 major food manufacturers, including Kraft, Coca-Cola, and General Mills.<sup>59</sup> The Ethical Tea Partnership includes approximately 25 tea producers, ranging from multinationals to small specialists, and emphasizes producer support and technical assistance, strategic sustainability, and standards setting and enforcement.<sup>60</sup> A new coffee alliance, the IDH Coffee Program, is a public-private partnership that aims to increase sustainable coffee production and strengthen the position of coffee farmers within the value chain. Its members include Kraft, Nestlé, and Tchibo.<sup>61</sup>

Buyers consider such alliances to be crucial to their business interests. Although pre-competitive alliances in smallholder sourcing began as a response to advocacy and consumer preferences for sustainable sourcing, companies increasingly see sustainable sourcing as a business strategy. As a result, they are cultivating sources of smallholder supply that could benefit the entire industry—including potential competitors. For instance, buyers are partnering with donors to provide funds to technical assistance groups that train and organize smallholders. The benefits of such public-private partnerships may not accrue directly to the buyer, but they help to lay the groundwork for wider industry development.

Other buyers are investing in smallholder-focused funds, such as the Fairtrade Access Fund. The Fairtrade Access Fund is a joint venture between Fairtrade International, Incofin Investment Management, and the Grameen Foundation, and is the first fund to focus on the long-term finance needs of smallholders. Its first investor is Starbucks, which contributed \$1.3 million in seed capital.<sup>62</sup>

# Growth Pathway 4: Finance through alternate aggregation points

This report primarily focuses on the social lending model, but social lenders can reach only the small proportion of smallholders that are aggregated into producer organizations. The next two growth pathways described in this report explore ways to finance the approximately 90 percent of smallholders not aggregated in producer organizations or out-grower schemes. This section describes the possibility of providing financing through alternate points of aggregation in the value chain, such as warehouses, traders, or input suppliers. A warehouse-lending program in Kenya provides an example. Expanding such programs will require large investments in creating, piloting, and testing appropriate models. It will also require support and investment for small businesses in the value chain.

**The vast majority of smallholder farmers do not participate in producer organizations, and providing finance to them will be a challenge.** As discussed in previous sections, producer organizations allow smallholders to consolidate their influence in the value chain, enabling them access to a variety of benefits, including financing from social lenders based on purchase orders. From a lender's perspective, non-aggregated smallholders not only fail to satisfy collateral and credit history requirements, but also pose high transaction costs. The costs of originating, managing, and collecting small loans for a large number of dispersed farmers are very high and pose a significant barrier to financing non-aggregated smallholders.

**One approach is to reach smallholders through alternate points of aggregation in the value chain.** Alternate aggregation points may include warehouses, input suppliers, or traders. The goal is not to finance the alternate aggregation points themselves, but to use them as a vehicle for on-lending. A warehouse-receipt program for Kenyan maize farmers illustrates how this model works (see box 10).

## BOX 10: KENYA'S MAIZE FARMERS

Kenya has 3.5 million maize farmers, 95 percent of whom are smallholders. Like many smallholders, they realize significantly lower yields per hectare than large, commercial farms. About 10 percent belong to producer organizations, but Kenya's producer organizations serve mostly a marketing and advocacy role. They reportedly convey to their members little in the way of technical assistance, finance, or management.<sup>63</sup>

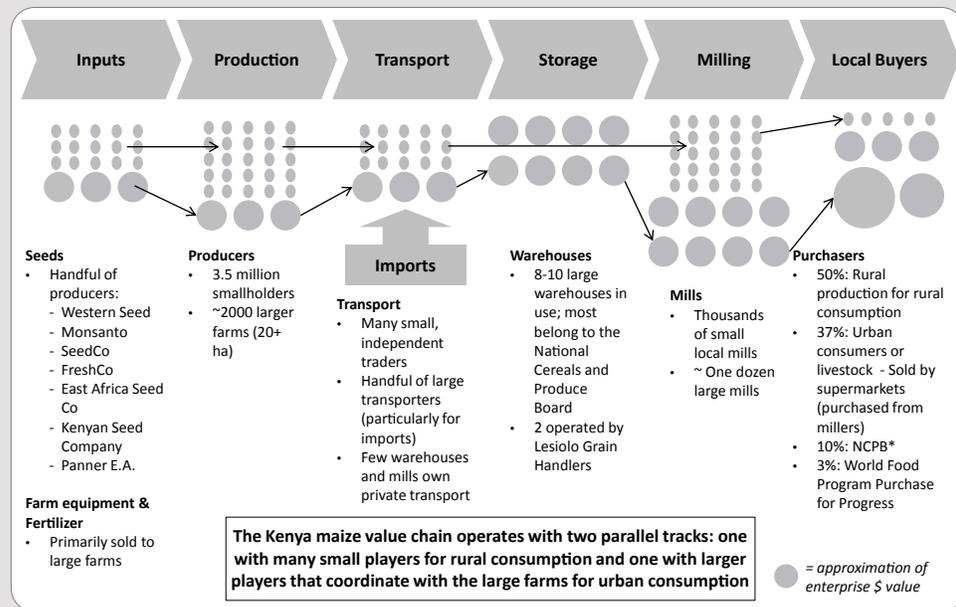
Thus the maize value chain is fragmented and diffuse. One of the few potential points of aggregation in the value chain is warehouses. Kenya has only eight large, active storage facilities in the country.<sup>64</sup>

Meanwhile, Kenya's maize smallholders face a pressing need for financing. Farm gate prices drop immediately after harvest, when maize floods the market. Throughout the season, as the maize supply dwindles, prices rise dramatically—by at least 50 percent, and possibly more than doubling. Without access to post-harvest finance or reasonably priced storage equipment, smallholders typically cannot afford to wait for prices to increase. Most sell their maize immediately post-harvest and use the proceeds to pay for necessities like food and school fees. Large farmers, on the other hand, have better access to financing and warehouses, and so can take advantage of price increases later in the season.<sup>65</sup>

To try to address smallholder storage and post-harvest finance needs, Kenyan storage facility Lesiolo has experimented with warehouse receipt programs. In one model, groups of smallholders can deposit maize in a Lesiolo warehouse after harvest and receive approximately 60 percent of its cash-value as a loan. When prices rise later in the season, smallholders can retrieve the remaining maize and sell it on the market.

The Lesiolo model has obstacles to overcome. Its minimum deposit requirement of 10 tonnes requires groups of approximately 10 smallholders to deposit together, and there are no established mechanisms for legal protection if a partner farmer withdraws early. Transporting maize is costly, and many smallholders find it easier to store on the farm or locally, or to simply sell their product.

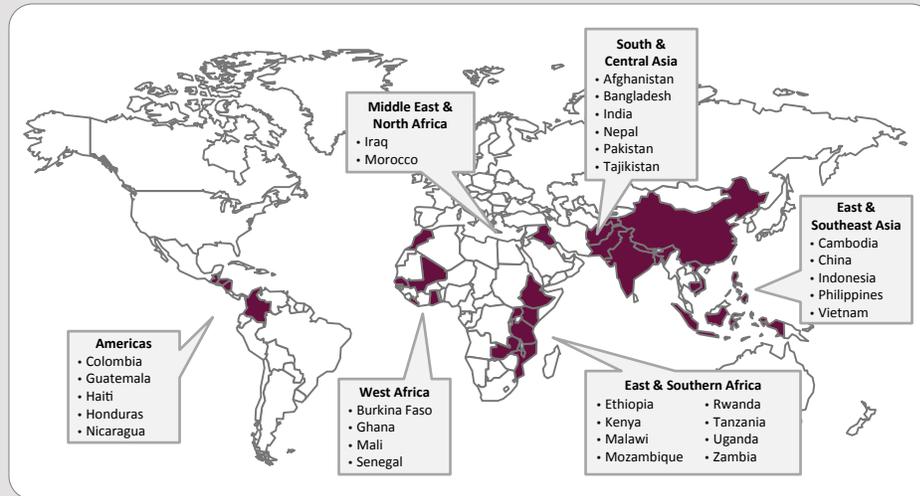
FIGURE 26: KENYA'S MAIZE VALUE CHAIN



\* National Cereals and Produce Board

Source: Expert Interviews: Ministry of Ag, Financial Institutions, Social Lenders, TA providers, Storage; 6/2012, Literature Review, Dalberg Analysis

FIGURE 27: **PRIORITY COUNTRIES FOR AGRICULTURE AID**



Note: Highlighted countries include: i) Top 15 recipients of aid in the Agriculture and Rural Development Sector, ii) Focus countries for the New Alliance on Food Security and Nutrition, and iii) Focus countries for Feed the Future, the US government's global hunger and food initiative. Source: OECD, "Aid to agriculture and rural development, 2011"; White House "Fact Sheet: G-8 Action on Food Security and Nutrition"; Feed the Future website Dalberg analysis

The first step to building alternate aggregation point financing models is to identify smallholder aggregation points. Because of the large amounts of testing and piloting required to establish these finance models, investors should target countries that receive large amounts of ODA for agriculture in order to share costs (see figure 27).

Within those countries, potential aggregation points include large traders and suppliers of smallholder inputs such as seeds and fertilizer. Africa's Export Trading Group, for instance, has a vast procurement network that integrates farming, trading, and processing of agricultural commodities. It has begun to experiment with financing smallholders in its network with input packs that include seed, fertilizer, weather insurance, and a minimum guaranteed price for their produce.<sup>66</sup>

Financing through alternate aggregation points requires business strengthening and model testing, and thus significant amounts of soft capital or grants.

At this point, donors and impact investors will likely take the lead in supporting innovation in this model. Once the new models are shown to be viable, social lenders can mobilize capital to disburse through alternate aggregation points. Technical assistance providers will play a role in improving the management of aggregation points and rolling out and testing new models. Commercial lenders, especially small-medium enterprise (SME) teams, can also disburse funding through alternate aggregation points, using their expertise in assessment and allocation of risk.

# Growth Pathway 5: Finance direct to farmer

For those interested in the smallholder finance market, reaching farmers in value chains that have few points of aggregation poses significant challenges. Direct-to-farmer financing is the last mile of smallholder lending. Microfinance models may be applicable, especially those that deploy mobile technology. Pursuing this pathway will require grants and soft capital to develop and test viable models.

**Reaching farmers in value chains with few points of aggregation is a significant challenge.** The vast majority of the world's smallholders do not belong to producers' organizations. Smallholders tend to be dispersed over wide geographic areas that are poorly connected by roads, transport, and other infrastructure. The value chains in which they participate are also diffuse, characterized by a multitude of informal processors and traders.

**Nigeria's rice market illustrates the opportunities and challenges involved in reaching non-aggregated farmers.** Nigeria's rice market holds some promise for lenders and others interested in smallholder finance. Nigeria's 650,000 smallholder rice farmers are responsible for 90 percent of the country's rice production. Most of it is for domestic trade, not on-farm consumption. Smallholders have a short-term finance need of approximately \$260 million,<sup>67</sup> but only about \$5 million in formal lending has penetrated the market.<sup>68</sup> The Nigerian government has made improving rice production a priority, with a view to ending rice imports by 2015. To that end, it has invested some \$40 million in the sector and recently purchased 100 new rice mills.<sup>69</sup>

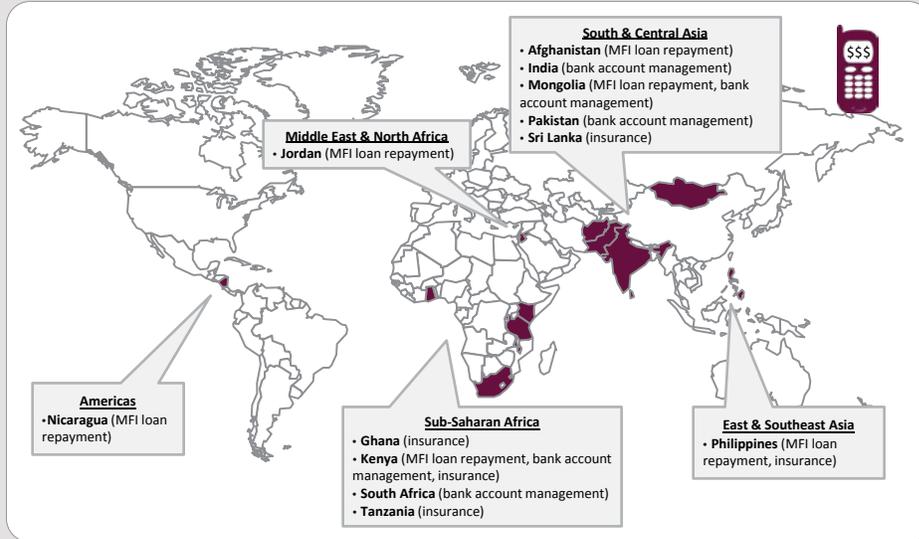
To improve productivity, smallholders need access to finance. But the rice value chain has few potential points of aggregation through which to provide it, unlike other staple crops traded in-country, such as maize in Kenya. Smallholders process their rice at thousands of small, dispersed mills, and trade it with small or medium paddy traders.<sup>70</sup> Although 20 percent of rice smallholders, a relatively high proportion, belong to cooperatives

or other producer organization, the cooperatives are not well managed and do not create much value for smallholders. Because most rice is traded domestically and with few quality controls, there is no need for certifications related to export or fair trade that would necessitate cooperative formation, as contrasted with the well managed cooperatives for high-value export crops in other countries. Moreover, from a lender's perspective, cooperatives have not led to lower risks of default.<sup>71</sup>

**Microfinance models, especially those that incorporate mobile aspects, may provide ways to reach farmers directly.** Microfinance models globally have proven that it is possible to bank individuals who do not have formal sources of collateral and did not previously have access to the formal banking system. However, in order to work with farmers, the microfinance model would need to be adapted in order to reach across vast distances, as well as to smallholder cash flow profiles. For example, most microfinance models are enabled by the relative profitability and high inventory turnover of street vendors and are not viable with seasonal household cash flows of small-scale farmers. Furthermore, microfinance institutions tend to be based in urban and peri-urban areas rather in the rural areas where farmers live and work.

From an investor's perspective, a microfinance model can be fairly low risk because the risk of each individual client is spread across a very large number of small clients. Rather, the main cost of a microfinance model for agriculture is related to the distribution costs of reaching remote and dispersed clients.

FIGURE 28: COUNTRIES WITH MOBILE BANKING INFRASTRUCTURE



Source: Groupe Speciale Mobile Association (GSMA), Mobile and Development Intelligence portal, Dalberg analysis

One Acre Fund, a nonprofit organization founded in Kenya, has developed and proven a model of microfinance for farmers. It provides smallholder farmers with a bundle that includes training, inputs, credit, storage, and insurance. Farmers have the flexibility to repay loans at their own convenience with the only requirement being that they fully repay the loan at harvest time.

Opportunity International (OI), a microfinance institution that works in sub-Saharan Africa, is experimenting with smallholder finance linked to mobile banking and mobile devices. The intent is to offer smallholders a way to access financial services much closer to their farms. OI deploys loan officers to their smallholder clients' farms to map their land with GPS and construct crop and household profiles. With that information, OI performs an in-house analysis of the cost of production and constructs appropriate loans. It also plans to incorporate mobile banking vehicles to bring banking directly to farmers.<sup>72</sup>

**The penetration of mobile technology throughout the developing world will help enable smallholder finance.** As mobile phones penetrate hard-to-reach rural areas in the developing world, non-aggregated farmers will likely have new ways to connect with lenders. The deployment of mobile banking platforms could significantly increase smallholders' access to finance. Financiers interested in emerging markets for non-aggregated markets should target countries with high penetration of mobile technology (see figure 28).

**Developing this pathway depends on grants and soft capital to test new models.** Microfinance institutions should lead by developing, testing, and scaling models for agriculture. Donors and impact investors should invest soft capital in microfinance institutions targeting rural agriculture. Meanwhile, technical assistance providers can teach farmers to use the funding to improve productivity.

# Next steps: A call to action

Each of the five growth pathways identified in this report is discrete and can be pursued independently of the others. However, each pathway requires collaboration, and the work of any single actor depends on others. For example, in Pathway 1 (replicate and scale social lending), social lenders will take the lead. But their work depends on farmer aggregation, which is driven by technical assistance providers. Technical assistance providers, in turn, need funding from donors to increase and strengthen producer organizations.

**Donors and impact investors provide foundational capital in all five pathways**, but their role depends on whether they focus on scaling proven models or innovating new ones:

- *Replicate and scale*: Pathway 1 (replicate and scale social lending) and pathway 3 (finance out-grower schemes) have proven models that can be grown through targeted investments
- *Innovate*: The other three pathways need soft capital and time to experiment, pilot and prove models; once initial research and development costs are recouped, these pathways can also be scaled

**Each financier must decide where to apply their marginal dollar based on their capabilities.** For example:

- Social lenders can replicate existing financing models and innovate new financing products
- Small business teams within commercial banks can follow social lenders into commercially viable markets

- Corporate agriculture teams within commercial banks can support out-grower schemes of multinational buyers
- Transaction teams can develop tailored hedging and insurance products to manage and share risk
- Microfinance institutions can tackle the cost of distribution for direct to farmer lending

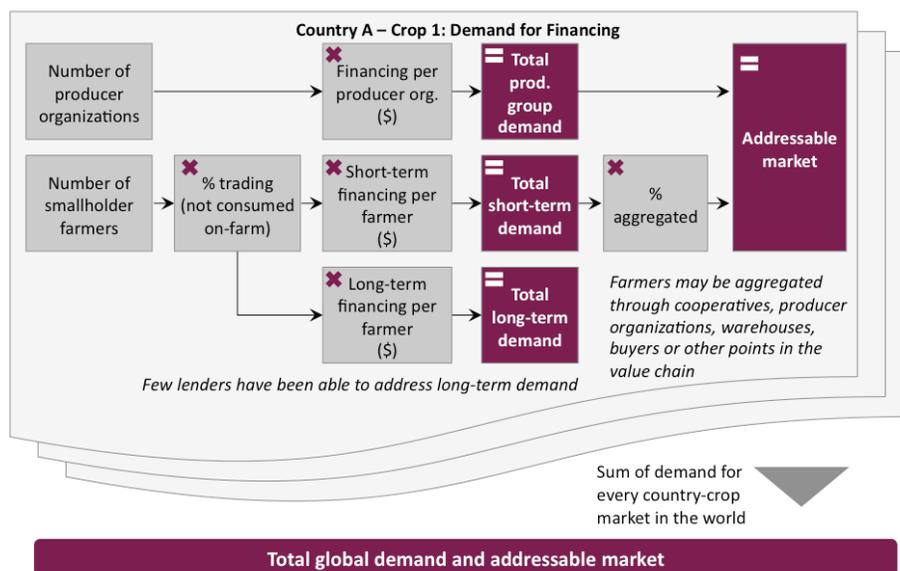
**The role of multinational buyers depends on the characteristics of the value chain:**

- *In exportable cash crop value chains*, multinational buyers can work with social lenders to facilitate financing using purchase contracts as collateral.
- *In captive value chains*, multinational buyers can develop out-grower schemes and use their relationships with farmers to originate loans, assess risk, and collect payments either on their own or in partnership with a financial institution.

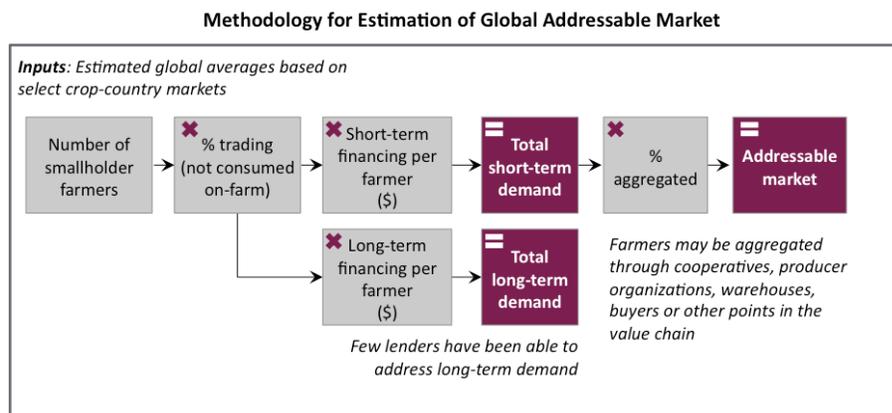
In general, **more information collection and transparency is required in order to size and segment specific market opportunities.** Furthermore, industry alliances and working groups can be strengthened or established in order to develop and promote best practices among social lenders, multinational buyers, and other actors in the smallholder finance ecosystem.

# Annex I: Market sizing methodology

**WITH PERFECTLY AVAILABLE DATA, DEMAND FOR SMALLHOLDER FINANCE WOULD BE ESTIMATED BY COUNTRY AND BY CROP FOR EVERY MARKET**

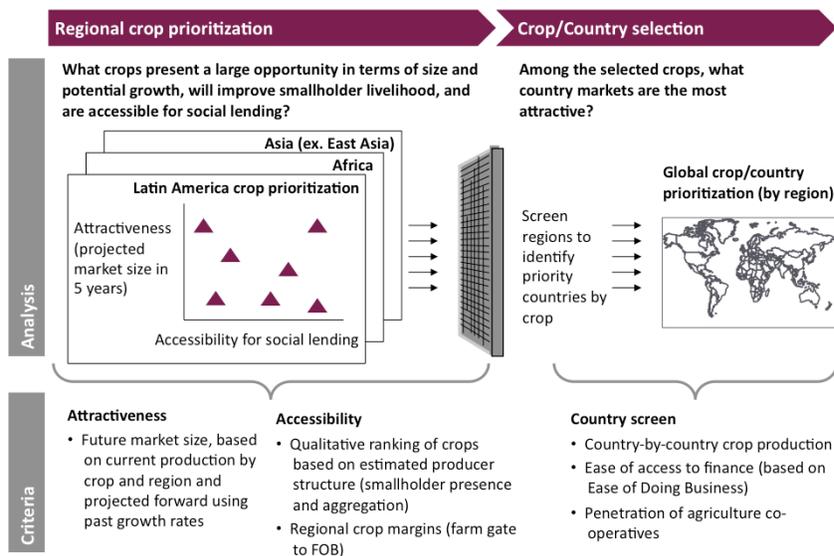


**HOWEVER, LIMITED AVAILABILITY OF DATA MEANS A DIRECTIONAL ESTIMATION WAS USED INSTEAD**

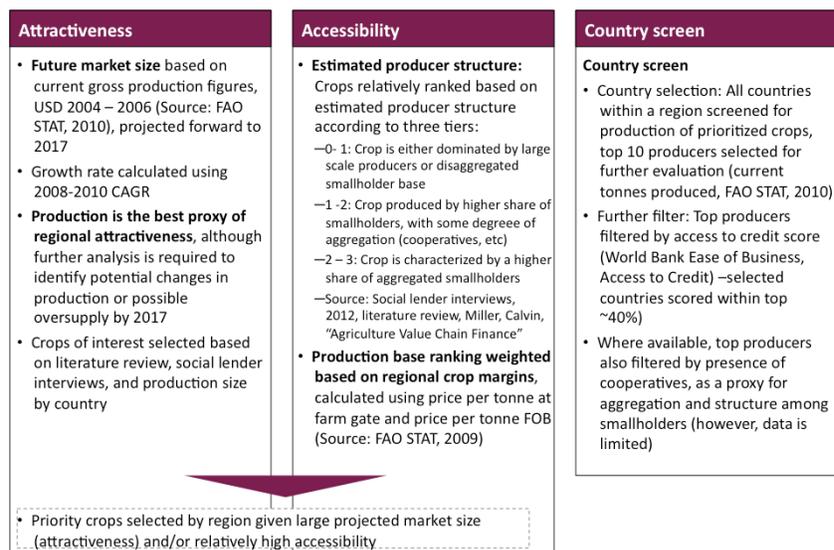


# Annex II: Social lending crop/country market selection methodology and findings

## METHODOLOGY FOR CROP/COUNTRY PRIORITIZATION

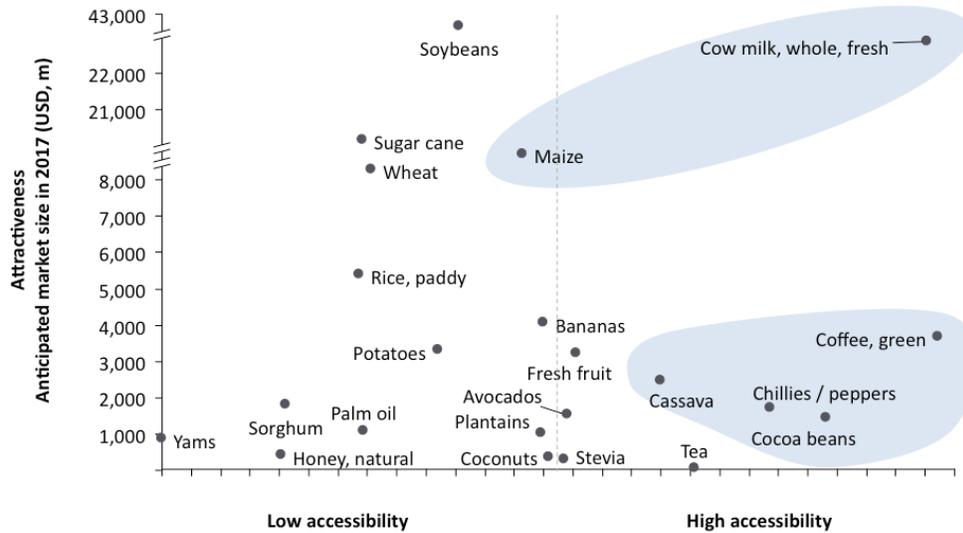


## RESEARCH AND DATA INPUTS



Note: Qualitative clean-up has been conducted to quality-check recommended crop/country pairings.

## CROP PRIORITIZATION: LATIN AMERICA AND CARIBBEAN



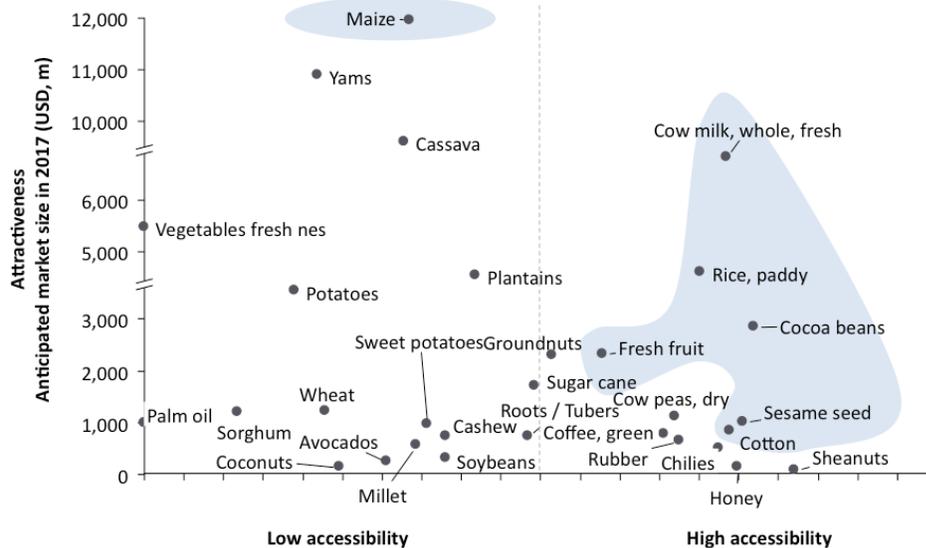
Includes Mexico, Central America, South America and Caribbean.

Note: Margins not available in all crops, all regions, and the following crops have margins based on proxies from similar crops: Cassava based on yam, Stevia based on sugar

Coffee includes all coffee types. Latin America coffee production includes Robusta only.

Source: FAO Stat, 2005 to 2010. Miller, Calvin, "Agriculture Value Chain Finance." Dalberg Analysis.

## CROP PRIORITIZATION: SUB-SAHARAN AFRICA

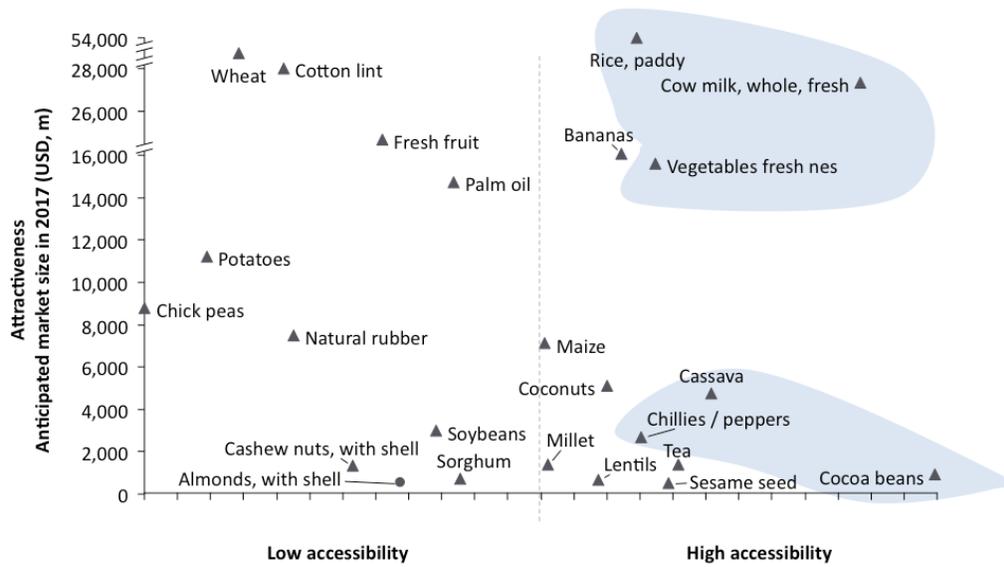


Note: Margins not available in all crops, all regions, and the following crops have margins based on proxies from similar crops: Cassava based on yam, Cow peas based on green beans, in some regions millet based on Wheat; Cashew margins from West Africa Trade Hub.

Coffee includes all coffee types. Sub-Saharan coffee production includes Arabica only.

Source: FAO Stat, 2005 to 2010. Miller, Calvin, "Agriculture Value Chain Finance." Dalberg Analysis.

## CROP PRIORITIZATION: ASIA (EXCLUDING EAST ASIA)

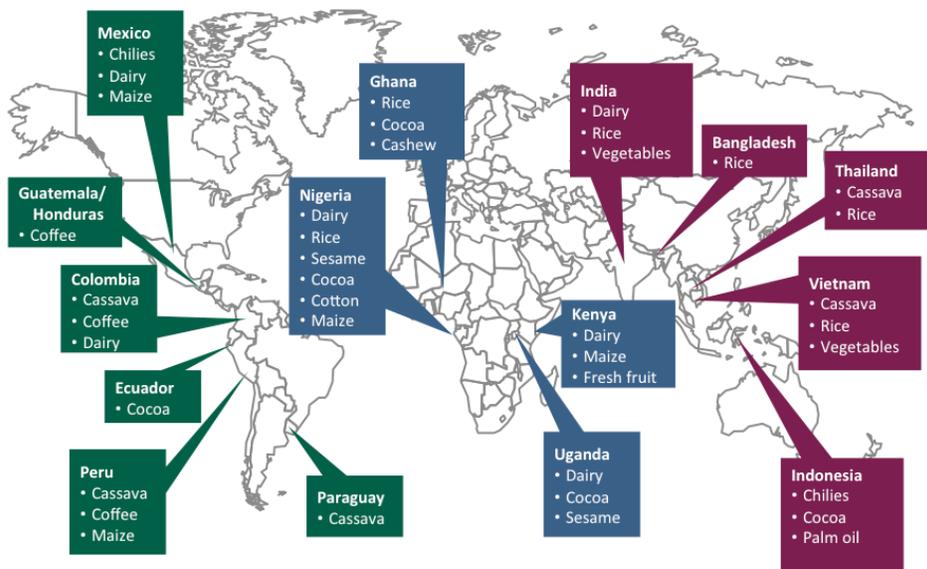


Note: Margins not available in all crops, all regions, and the following crops have margins based on proxies from similar crops: Cassava based on yam, millet based on Wheat, chili peppers and bananas based on overall produce (fruit) margins.

Coconuts de-prioritized due to external factors beyond consideration within this model – All producers export <2% of production (ex. Vietnam, which exports 10%)

Source: FAO Stat, 2005 to 2010. Miller, Calvin, "Agriculture Value Chain Finance." Dalberg Analysis.

## ANALYSIS REVEALS THE FOLLOWING CROP/COUNTY PAIRS AS HIGH PRIORITY FOR SOCIAL LENDING



Note: Indonesia included despite low access to finance ranking

Source: World Bank Ease of Doing Business, FAO Stat, International Cooperative Alliance, Dalberg Analysis

# Annex III:

## Recommended reading list

### GENERAL

- FAO, "Agricultural investment funds for developing countries," 2010
- FAO, IFAD, IIED, "Making the most of agricultural investment: A survey of business models that provide opportunities for smallholders," 2010
- McKinsey, "Four lessons for transforming African agriculture," April 2011
- Milder, Brian, "Closing the gap: Reaching the missing middle and rural poor through value chain finance," Enterprise Development and Microfinance, December 2008
- Miller, Calvin and Jones, Linda, "Agriculture Value Chain Finance: Tools and Lessons," FAO, 2010
- Proceedings of the conference "Agricultural value chain finance," II Conference 2010
- TechnoServe, IFAD, "Outgrower schemes – enhancing profitability," 2011

### NIGERIA

- AGRA and the Monitor Group, "Building Crop Value Chains, Driving Value Creation," April 2011
- Bayou farms and industries limited, "Rice value chain development plan," April 2009
- IFDC, "Study of the Domestic Rice Value Chains in the Niger Basin of Mali, Niger, and Nigeria, West Africa," September 2008
- USAID, "Global food security response West Africa rice value chain analysis: global food security response Nigeria rice study," August 2009
- West Africa Rice Development Association (WARDA), "Rice production systems in Nigeria: A Survey," September 2003

### KENYA

- MARS Agrometeorologica, "Crop Monitoring in Kenya: Long Rain Maize Production," Aug 2009
- Tegemeo Institute of Agricultural Policy and Development, Egerton University, "Maize Production Outlook and Implications on Food Security," Sept. 2009
- USAID, "Smallholder Maize Marketing in Mozambique, Kenya, and Zambia," July 2011

### INDONESIA

- Swisscontact, "Asia regional report," 2011
- Swisscontact, "PEKA Progress report," 2011
- USAID, "Indonesia cocoa bean value chain case study," June 2006
- VECO, "Increased incomes for Indonesian cocoa farmers in sustainable markets: NGO-private sector cooperation on Sulawesi island," September 2011

### COLOMBIA

- Fedegan, "La Ganadería Colombiana y las Cadenas Láctea y Cárnica," October 2011
- Mindpower Solution, "Latin America milk and dairy products outlook to 2015," June 2011
- Ministerio de Agricultura y Desarrollo Rural, "Cadenas Productivas, Informe de Gestión," 2010
- Oxfam, "Dairy sector" for EDP Investment Committee, June 15th, 2010

# Annex IV: List of interviewees

## EXPERT INTERVIEWS

Name	Title	Organization
<b>BUYERS</b>		
Rodolfo Luterman	Financial Manager	ADM
Doug Ostermann	VP and Treasurer	ADM
Tim Venverloh	Director, Sustainability	ADM
George Jaksch	Sr. Director, Corporate Responsibility & Public Affairs	Chiquita
Konrad Brits	Managing Director	Falcon
Matt Horsbrugh	Trader	Falcon
Miguel Reguera Fernandez-Cavada	Coffee Origin Manager	Louis Dreyfus
Peter van Grinsven	Cocoa Sustainability Director - Origin and Operations	Mars
Hans Joehr	Head of Agriculture	Nestle
Peter Sachs	Owner	Panamerican Coffee Trading
Pablo Ramirez	Ethical Sourcing Manager	Starbucks
Jorge Cuevas	Director of Trade Operations	Sustainable Harvest
Justin Tait	Sunrise Learning and Communications Manager	Unilever
Michael Cullen	Senior Program Director	World Cocoa Foundation
William Guyton	President	World Cocoa Foundation
<b>SOCIAL LENDING</b>		
Sheikh Noorullah	Portfolio Manager	Acumen Fund
Siddharth Tata	Agriculture Portfolio Manager	Acumen Fund
Caroline Bressan	Investment Officer	Calvert Foundation
Cristina Larrea	Project and Business Development Manager	FAST International
Jason Potts	President & Chief Strategic Officer	FAST International
Angel Mario Martínez Garcia	Director	Progreso
Michaël de Groot	Senior Manager of Rabo Rural Fund	Rabobank
Daniel Rivera	General Manager, ACCDER	Root Capital
Malcolm Curtis	Customer Services Manager	Shared Interest
Tim Morgan	Finance Director	Shared Interest
Koert Jansen	Fund Manager	Triodos Sustainable Trade Fund

## EXPERT INTERVIEWS (CONTINUED)

Name	Title	Organization
<b>COLOMBIA – DAIRY</b>		
Sara Pareja	Advisor	ANALAC
Jorge Uribe	General Manager	ANALAC
Pedro Valderrama	Technical Secretary	Consejo Nacional Lácteo
Rolando Monroy Ortigón	Director of Credit	FINAGRO
German Rodriguez Paez	Livestock and Fishery Products Coordinator, Production Chains	Ministry of Agriculture
Felipe Barney	Program Officer	Oxfam
Timothy Chambers	Enterprise and Markets Adviser, Latin America and the Caribbean	Oxfam
Fabio Velazques Botero	Manager	SFA Cebar
<b>INDONESIA – COCOA</b>		
Ross Jaax	Regional Representative, Southeast Asia	ACDI/VOCA
T.J. Ryan	Managing Director, Specialty Crops	ACDI/VOCA
Esther Marthaler	Senior Advisor	Helvetas
Jens Soth	Program Manager	Helvetas
Ernest Bethe	Indonesia Program Manager for Agribusiness	IFC
Sitti Asmayanti	Sustainability Supply Chain Manager	Mars
Manfred Borer	Program Director, Sustainable Cocoa Production Program (SCPP)	Swisscontact
<b>KENYA – MAIZE</b>		
Steve Collins	Chief of Party, Kenya Maize Development Project	ACDI/VOCA
Sophie Walker	Regional Africa Advisor	ACDI/VOCA
Maurice Nduranu	Africa Manager	Acumen Fund
Lucas Meso	Managing Director	Agricultural Finance Corporate
Michael Mutiga	Corporate Banking Head	Citibank Kenya
Esther Muiruri	Agribusiness General Manager	Equity Bank
Andrea Woolverton	Agribusiness Economist	FAO
Abraham Barno	Sr. Asst. Director, Agro-industries Development	Ministry of Agriculture
Farid Mohamed	Director	Lesiolo Grain Handlers
Stephanie Hanson	Director of Policy and Outreach	One Acre Fund
Daniel Ndegwa	Investment Officer	ResponsAbility
Nate Schaffran	Vice President of Global Programs, Africa	Root Capital
<b>NIGERIA - RICE</b>		
Peter Jaeger	Market Research, Analysis and Linkage	Accord Associates
Kola Masha	Managing Director	Doreo Partners
Micheal David	Agricultural Specialist	USAID
Farouk Kurawa	Agricultural Finance Specialist	USAID
Godson Ononiwu	Director	USAID MARKETS II Project
<b>PERU – COFFEE</b>		
Luis Navarro	Trader	ATEXSA
Miguel Paz	Commercialization Manager	CECOVASA Co-op
Lorenzo Castillo	Manager	Junta Nacional del Café
Raúl Tineo Torres	Director	Progreso
Helder Delgado Tello	Coordinator	TechnoServe
Wagner Luis Garcia Tuesta	Coordinator	TechnoServe
Daniele Giovannucci	Former Senior Consultant	World Bank

# Annex V:

## End notes

- 1 Unilever press release, May 2007
- 2 "World Census of Agriculture," FAO and "Rural Population, development and the Environment 2007," UNDESA
- 3 UN Department of Economic and Social Affairs, Population Division
- 4 "How to Feed the World in 2050," FAO
- 5 OECD Statistics
- 6 Fund manager websites; fund manager documentation; sector literature and press releases; Dalberg analysis, 2009
- 7 Financial Times, May 30, 2012
- 8 Cargill press release, July 12, 2011
- 9 Public commitments of Kraft, Mars, Nestle, Ferrero and Hershey's
- 10 Starbucks website. C.A.F.E. is a Starbucks proprietary certification standard focused on (i) product quality, (ii) economic accountability, (iii) social responsibility, and (iv) environmental leadership
- 11 "Trends and Segments for Cocoa" report, "Fair Trade and Cocoa," Commodity Briefing August 2011, Fair Trade Foundation, Public commitments of cocoa buyers, Dalberg analysis
- 12 "East Africa Value Chain Partnership Opportunity," Gates Foundation and Monitor Consulting
- 13 Ibid., note 2
- 14 Approximate based on literature review in select countries
- 15 Estimated figure based on average ratio of agriculture export value to production value in select countries (FAO Stat)
- 16 Ibid., note 2
- 17 Rough estimate based on value chain expert interviews in Ghana (50% of farmers trade crops), Nigerian rice (80% of farmers trade crops), and Kenyan maize (20% of farmers trade crops)
- 18 Short-term financing is less than one year, typically for trade finance, inputs or harvest costs. Rough estimate is based on value chain expert interviews and samples of 1 hectare farms in Peruvian coffee (\$1,000 per ha), Kenyan maize (\$540 per ha), Indonesian cocoa (\$1,000 per ha) and Nigerian rice (\$250 per ha), plus producer organization export financing of approximately \$500 per farmer
- 19 Long-term financing is more than one year, typically for rehabilitation or equipment purchases. Rough estimate is based on value chain expert interviews and samples of 1 hectare farms in Peruvian coffee (\$1,100 per ha), and Indonesian cocoa (\$1,500 per ha)
- 20 Rough estimate of farmer participation in producer organizations based on interviews with value chain experts in Peruvian coffee (15-20%), Kenyan maize (5%), Indonesian cocoa (<1%) and Nigerian rice (20%)
- 21 Annual reports and interviews with social lenders, Dalberg analysis
- 22 Ibid.
- 23 Rough estimate of 1-2% of total demand (\$450 billion) based on samples in Nigerian rice (2%), Kenyan maize (6%) and Indonesian cocoa (<1%). Supply can be as high as 23% in a mature market like Peruvian coffee or 42% in a government subsidized market like Colombian dairy
- 24 Interviews with social lenders (May and June 2012)
- 25 Annual reports and interviews with social lenders (May and June 2012); Dalberg analysis
- 26 "MSMEs in Emerging Markets," McKinsey & Company
- 27 Ibid., note 25
- 28 Junta Nacional del Café
- 29 Cámara Peruana del Café y Cacao (CPC)
- 30 Interviews with cooperatives, buyers and social lenders (June 2012); Junta Nacional del Café. The actual number of farmers in cooperatives is unknown; data on number of farmers organized in cooperatives suggest that the level of aggregation may be as high as ~30%, but most sources suggest 15-20%
- 31 Interviews with technical assistance providers, social lenders and buyers in Peru (June 2012)
- 32 Includes technical assistance programs managed by TechnoServe, Progreso, ACDI/VOCA and the Ministry of Agriculture in Peru
- 33 Ibid., note 24
- 34 Ibid., note 31
- 35 "The World Cocoa Economy: Past and Present," International Cocoa Organization, September 2010
- 36 Ibid., note 7
- 37 FAO
- 38 Interview with Swisscontact, June 2012
- 39 Interview with ACDI/VOA, June 2012
- 40 Interviews with technical assistance providers (VECO)
- 41 Ibid.
- 42 Ibid., note 20
- 43 Ibid., note 18
- 44 Expert interview in Indonesia with financial institutions and technical assistance providers, June 2012; Dalberg analysis
- 45 Expert Interviews in Nigeria with financial institutions, social lenders, and technical assistance providers, June 2012; Dalberg Analysis

- 46 Interviews with social lenders; social lenders' annual reports; Dalberg analysis. The figure reflects 68 percent of the market and is based on available data.
- 47 Junta Nacional del Café
- 48 Source: Interviews with cooperatives and buyers; Cámara Peruana del Café y Cacao (CPC); Junta Nacional del Café
- 49 Ibid., note 47
- 50 Expert interview in Colombia, with ANALAC, government entities, financial institutions, producers' associations and milk producers, June 2012
- 51 Ibid.
- 52 Ibid.
- 53 Ibid.
- 54 Interview with Colombia Ministry of Agriculture, June 2012
- 55 <http://www.endeavor.org/entrepreneurs/fabio-velasquez/483>
- 56 Nestlé Annual Report 2011
- 57 Dalberg expert interview with Nestlé
- 58 Interview with IFC, July 2012
- 59 [www.saipatform.org](http://www.saipatform.org)
- 60 [www.ethicalteapartnership.org](http://www.ethicalteapartnership.org)
- 61 [www.idhsustainabletrade.com](http://www.idhsustainabletrade.com)
- 62 Grameen Foundation press release, April 24, 2012
- 63 Expert Interviews: Kenyan Ministry of Agriculture, Kenyan social lenders, Kenyan financial institutions, Kenyan technical assistance providers, private Kenyan storage facility, June 2012.
- 64 Ibid.
- 65 Ibid.
- 66 <http://www.etgworld.com/business-practices-2/community-social-responsibility/>
- 67 Figures based on data from Global Trade Alibaba; West Africa Rice Development Association (WARDA) Rice Report, 2003; and Expert Interviews
- 68 Expert Interviews with financial institutions, social lenders, technical assistance providers in June 2012
- 69 Ibid.
- 70 Expert Interviews with financial institutions, social lenders, technical assistance providers in June 2012; USAID "West Africa Rice Value Chain Analysis," 2009
- 71 Ibid.
- 72 <http://www.opportunity.org/blog/breakout-session-agricultural-finance-cultivating-hope/#.UDT13PEbVyR>



