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MANAGING RISKS AND DESIGNING PRODUCTS FOR AGRICULTURAL MICROFINANCE: FEATURES OF AN EMERGING MODEL

Introduction

Globally, 1.2 billion people are extremely poor—surviving on less than \$1 a day—and three-quarters live in rural areas.¹ Poverty is predominantly a rural phenomenon. Extremely poor people spend more than half of their income to obtain (or produce) staple foods, which account for more than two-thirds of their caloric intake. Most of these people suffer from nutritional deficiencies, and many go hungry at certain times of the year.

In recent years, development agencies and national governments have renewed their commitment to reducing poverty, hunger, and other human deprivations, as evidenced by the Millennium Development Goals (MDGs). Among other objectives, the MDGs aim to halve the proportion of people living on less than \$1 a day by 2015 (from the starting level of 1990). That means cutting the share of extremely poor people in low- and middle-income countries from 28 percent to 14 percent. The MDGs also call for halving the proportion of people suffering from hunger by 2015.

Rural poverty and hunger fell sharply between 1975 and 1990, but the rate of poverty reduction has since slowed. Net aid (that is, official development assistance) to developing countries fell from 0.35 percent of OECD countries' gross national income in 1982–83, to 0.24 percent in 2002–03.² The real value of net aid disbursed to agriculture in the late 1990s was only 35 percent of its level in the late 1980s, according to IFAD.³ And although the proportion of the economically active population engaged in agriculture has been falling in developing regions, it still exceeds 50 percent in Africa and Asia (table 1).

Agricultural finance has been one of the most prominent elements of the rural development strategies used by development agencies and national governments. Over the past 40 years, billions of dollars have been provided to support agricultural production and the green revolution.⁴ But this financing has long been characterized by poor loan repayment rates and unsustainable subsidies.⁵ Accordingly, agricultural credit from some donors and multilateral development banks has dropped dramatically in recent decades and is now often considered too risky.

For example, agriculture accounted for 31 percent of World Bank lending in 1979–81, but by 2000–2001 had fallen to less than 10 percent.⁶ This drop was



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CGAP, the Consultative Group to Assist the Poor, is a consortium of 31 development agencies that support microfinance. More information is available on the CGAP web site: www.cgap.org.



Table 1 Agriculture's Large Share of Economic Activity in Some Developing Regions (percentage of economically active population)

Region	1961	1980	2001
Africa	79	69	57
Asia	76	67	56
Eastern Europe	50	28	15
Latin America and Caribbean	48	34	19

Source: Buchenau, "Innovative Products and Adaptations for Rural Finance," 2003,

partly due to disappointment with large agricultural finance projects, and partly to the fact that World Bank rural finance increasingly occurred in other areas: through microfinance projects or as part of community development, infrastructure, or rural development projects. Lending by other multilateral development banks and bilateral aid agencies has mirrored this trend. At the Inter-American Development Bank (IDB), total lending to agricultural credit projects under the category "global agricultural credit" fell from US \$1.6 billion between 1986–1990 to no lending at all in the period 1991–95. Sector loans to assist borrowing countries to reform and strengthen financial markets became more significant for IDB,⁷ and this type of targeted investment rose from \$410 million in 1986–90 to \$2.9 billion in 1991–95.⁸

The renewed international emphasis on poverty reduction has put rural populations, particularly agricultural households, back in the spotlight of development efforts. Agricultural development programs often include credits for agricultural production, which has renewed the debate about how to provide finance in rural areas. Traditional providers of agricultural finance insist that it is time to recognize their role in specialized lending to meet the crop-based, cash-flow cycles of small farmers—now that microfinance institutions have successfully expanded into rural areas with their one-size-fits-all techniques.

Microfinance institutions have generally managed default risk very well, while traditional agriculture lenders have developed products that respond well to the cash-flow cycles and marketing relationships of farming communities. But it is important to remember that for many small farmers the main source of credit is not a bank or even a microfinance institution, but agribusiness actors such as input suppliers (for example, sellers of seed or fertilizer), traders, and processors. Moreover, self-finance continues to play a vital role in agricultural production.

Risk in Agricultural Lending

Agriculture is widely considered more risky than industry or trade. Thus, it is not surprising that agricultural lending projects have had poor repayment performance. Weather, pests, diseases, and other calamities affect the yield of crops—substantially in extreme cases. For example, in 2003 the United Nations Food and Agriculture Organization (FAO) reported that the third successive year of widespread crop failures in Malawi (due to excessive rains, floods, hailstorms, and in some areas, dry spells) had afflicted 176,000 families in four provinces with food deficits and chronic hunger severe enough to warrant humanitarian assistance to prevent starvation.⁹ Such risks are higher for farmers engaged in monoculture of crops that are particularly sensitive to the correct use of high-quality inputs or the timing of harvesting. Risk in agriculture can also be traced to farmers seeking to increase their incomes through higher-risk, higher-return cropping strategies.

Markets and prices are additional risks associated with agriculture. Many agricultural markets are imperfect, lacking information and communications infrastructure. The prices that crops will sell for are unknown at the time of planting, and vary with levels of production (locally and globally) and demand at the time of sale. Prices are also affected by access to markets. As state-owned

marketing organizations are phased out, small farmers face much higher price risks in many countries. And inelastic demand for many agricultural products causes small increases in production to result in large price swings.

Complicating the scenario is that decision making in agriculture is not an exact science; it depends on many variables that change from year to year and are beyond the farmers' control. Farmers have no real way of knowing how many others are planting a specific crop or how average yields will fare in any given year. Often, a good price one year motivates a lot of farmers to move into the same crop the next year. This shift increases production in the face of constant demand, driving down the price and making the crop much less attractive the following year.

This happened in Uganda recently, when a bumper maize harvest in late 2001 and early 2002 caused maize prices (and farmer incomes) to fall, significantly affecting loan repayment in four branches of the Centenary Rural Development Bank.¹⁰ Bumper crops can sometimes cause problems even for well-run microfinance institutions. At Kafo Jiginew (a federation of credit unions in Mali), the portfolio at risk (over 90 days) jumped from 3 percent in 1998 to 12 percent in 1999 due to a slump in cotton prices. (Cotton loans accounted for a large share of its portfolio.)

Market and price risks can also be exacerbated by international market conditions and public policy decisions, which can lead to political risk. For example, the creation or removal of tariff barriers in countries where goods are ultimately sold can dramatically change local prices. In the 1990s, the Ghanaian government introduced a limited exemption from import duties on white maize in response to a crop forecast—which later proved incorrect—that predicted a major food shortage. As a result, market prices for maize were depressed in Ghana for two years.¹¹ Similarly, national governments can change farming subsidies in ways

that alter returns on specific activities.

With the entry of new players, growing competition in international markets can fundamentally change the competitiveness of a local industry, as with Vietnam's recent entry into the coffee industry at the expense of higher-cost producers in Latin America. The result has been millions of dollars of bad debt in commercial banks that specialize in lending to small coffee producers throughout Central America.¹²

The precision of crop schedules generates specific risk for agricultural finance. Loan disbursements need to be tailored to irregular cash flows, yet the timing of final crop income may vary, based on when farmers choose to sell. (They may delay selling until market conditions are favorable.) These characteristics of agricultural production require lenders to be quite efficient and physically close to their farmer clients. Thus, for banks and other financial institutions, agricultural lending involves a risk of causing default due to their own inefficiency. The production of most improved cash crops is relatively complex, involving careful timing of numerous steps—from preparing land through planting, fertilizing, and harvesting. Mistakes or delays at any step can substantially reduce returns—or eliminate them altogether.

Agricultural Microfinance

Drawing on a few significant, successful experiences in various developing countries, this paper offers a model, termed *agricultural microfinance*, for providing financial services to poor, rural farming households. This model combines the most relevant and promising features of traditional microfinance, traditional agricultural finance, and other approaches—including leasing, area-based insurance, use of technology and existing infrastructure, and contracts with processors, traders, and agribusinesses—into a hybrid defined by 10 main features.

The analysis here has found that successful agricultural microfinance lenders rely on various combinations of these features to mitigate the risks associated with lending to farming households, although in no experience were all 10 features present. In fact, this paper does not suggest that to be successful in agricultural microfinance, all 10 should be present, just that a substantial number of them seem to contribute to a well-performing portfolio, in diverse combinations, in a variety of circumstances. In general, the first few features are found in most successful experiences, while those that come later on the list have proven important in addressing particular risks or situations found in lending to specific types of agricultural activities. Most of the features address issues specific to financing agriculture, some respond to the general challenges of operating in rural areas, and some reflect good practice in delivering small unsecured loans.

- **Feature 1: *Repayments are not linked to loan use.*** Lenders assess borrower repayment capacity by looking at all of a household's income sources, not just the income (e.g., crop sales) produced by the investment of the loan proceeds. Borrowers understand that they are obliged to repay whether or not their particular use of the loan is successful.¹³ By treating farming households as complex financial units, with a number of income-generating activities and financial strategies for coping with their numerous obligations, agricultural microfinance programs have been able to dramatically increase repayment rates.
- **Feature 2: *Character-based lending techniques are combined with technical criteria in selecting borrowers, setting loan terms, and enforcing repayment.*** To decrease credit risk, successful agricultural microlenders have developed lending models that combine reliance on character-based mechanisms—such as group guarantees or close follow-up on late payments—with knowledge of

crop production techniques and markets for farm goods.

- **Feature 3: *Savings mechanisms are provided.*** When rural financial institutions have offered deposit accounts to farming households, which helps them to save funds for lean times before harvests, the number of such accounts has quickly exceeded the number of loans.
- **Feature 4: *Portfolio risk is highly diversified.*** Microfinance institutions that have successfully expanded into agricultural lending have tended to lend to a wide variety of farming households, including clients engaged in more than one crop or livestock activity. In doing so, they have ensured that their loan portfolios and the portfolios of their clients are better protected against agricultural and natural risks beyond their control.
- **Feature 5: *Loan terms and conditions are adjusted to accommodate cyclical cash flows and bulky investments.*** Cash flows are highly cyclical in farming communities. Successful agricultural microlenders have modified loan terms and conditions to track these cash-flow cycles more closely without abandoning the essential principle that repayment is expected, regardless of the success or failure of any individual productive activity—even that for which the loan was used.
- **Feature 6: *Contractual arrangements reduce price risk, enhance production quality, and help guarantee repayment.*** When the final quality or quantity of a particular crop is a core concern—for example, for agricultural traders and processors—contractual arrangements that combine technical assistance and provision of specified inputs on credit have worked to the advantage of both the farmer and the market intermediary.
- **Feature 7: *Financial service delivery piggybacks on existing institutional infrastructure or is extended using technology.***

Attaching delivery of financial services to infrastructure already in place in rural areas, often for nonfinancial purposes, reduces transaction costs for lenders and borrowers alike, and creates potential for sustainable rural finance even in remote communities. Various technologies show enormous promise for lowering the costs of financial services in rural areas, including automated teller machines (ATMs), point-of-sale (POS) devices linked to “smart cards”, and loan officers using personal digital assistants.

- ***Feature 8: Membership-based organizations can facilitate rural access to financial services and be viable in remote areas.*** Lenders generally face much lower transaction costs when dealing with an association of farmers as opposed to numerous individual, dispersed farmers—if the association can administer loans effectively. Membership-based organizations can also be viable financial service providers themselves.
- ***Feature 9: Area-based index insurance can protect against the risks of agricultural lending.*** Although government-sponsored agricultural insurance schemes have a poor record, area-based index insurance—which provides payouts linked to regional levels of rainfall, commodity prices, and the like—holds more promise for protecting lenders against the risks involved in agricultural lending.
- ***Feature 10: To succeed, agricultural microfinance must be insulated from political interference.*** Agricultural microfinance cannot survive in the long term unless it is protected from political interference. Even the best-designed and best-executed programs wither in the face of government moratoriums on loan repayment or other such meddling in well-functioning systems of rural finance.

This paper discusses each feature of the proposed agricultural microfinance model. It out-

lines the key elements, provides examples, and describes the many challenges that remain to be addressed. Concrete examples are provided based on the experiences and achievements of leading organizations pushing the frontiers of finance in agricultural communities. Still, success—measured in terms of long-term financial sustainability and high repayment rates—remains somewhat rare. Clearly, success in agricultural microfinance is harder than in general microfinance.

General performance standards of the microfinance field were applied, in terms of loan recovery levels and financial sustainability, rather than the somewhat lower standards of traditional agricultural finance. It should be noted that many of the experiences in this paper that met these standards and were judged successful are nevertheless relatively experimental or less well-tested than those in the general field of microfinance and other areas of development finance. Strong microfinance institutions have only recently expanded into more difficult rural markets and begun to experiment with providing services to farming households.

A model with all 10 features may not exist in any financial institution currently serving poor farmers, although a few come close. Moreover, the paper does not suggest that there is broad consensus on a potential model for agricultural microfinance. Rather, it identifies features that have worked well in various combinations on the frontier of rural finance in agricultural regions with many poor families. With luck, this paper will trigger a more comprehensive discussion of what features such a model should include.

The purpose of the paper is to provide practitioners, policymakers, and donors with a thorough overview of agricultural microfinance. It is hoped that they can use this information to expand the access of farming-dependent households to sustainable financial services on a massive scale.

Research Methodology

In 2002–03, the Consultative Group to Assist the Poor (CGAP), with funding from the International Fund for Agricultural Development (IFAD), assessed nearly 80 providers of agricultural microfinance to identify sustainable approaches to providing such services. These institutions had been identified as well-functioning agricultural lenders by rural development specialists and the microfinance literature. This paper is informed by this research, as well as innovative work by other organizations and individuals, including the United Nations Food and Agriculture Organization (FAO), Germany’s Gesellschaft für Technische Zusammenarbeit (Agency for Technical Cooperation, or GTZ), the US Agency for International Development (USAID), the World Bank, individual microfinance experts, technical service providers, and financial institutions.

The analysis in this paper was conducted without bias toward any specific institutional type or approach, because there is enormous potential for cross-learning between traditional agricultural finance, agribusiness credit, and microfinance. Although the paper focuses on lending, it also recognizes and explores the importance of deposit, insurance, and money transfer services—for both farming households and financial institutions.

This paper was produced as a desk review, supplemented by correspondence with the institutions in the case studies, visits to selected institutions, and discussions with knowledgeable third parties.¹⁴ The data on rural finance programs reported here, particularly repayment rates and financial sustainability levels, come from a variety of sources, including reports by agricultural lenders.

Of the nearly 80 agricultural microfinance providers assessed by CGAP, this paper focused on 30. These institutions were chosen because they reportedly had achieved high repayment rates over a long period, had reached or were on a

path toward financial sustainability, and had the potential to operate on a large scale or be replicated. Some of the institutions that are not discussed in the paper might have had similarly strong results, but had recently experienced a particularly bad year (for example, due to price fluctuations, unfavorable climate conditions, or political interference) and did not have an adequate risk management strategy or a sufficiently robust model for dealing with the intrinsic risks of agricultural lending. At the same time, some institutions that were included may have experienced similar problems since then and may no longer be good examples.

The difficulty in finding a large number of examples of successful providers of agricultural microfinance shows how susceptible the field is to factors beyond its control—and how necessary it is for agricultural lenders to adopt the most important lessons of the burgeoning microfinance industry to minimize controllable lending risks. It also serves as a cautionary tale for microlenders moving into rural areas and lending to households that depend on agriculture for their livelihoods.

CGAP has published case studies of representative examples online from the list of successful agricultural microfinance providers. This paper makes extensive use of the research conducted for these studies. In addition to identifying innovations and practices, the research emphasizes the importance of developing a supportive enabling environment for rural finance.

Feature 1 Repayments Are Not Linked to Loan Use

A fundamental feature of the emerging agricultural microfinance model is that it delinks loan uses from repayment sources and instead treats the entire farming household as a single economic unit, with multiple income sources and multiple financing needs. Even if a loan is supposed to be

used to produce a specific crop, the borrower's entire household income is considered when judging repayment capacity. Correspondingly, whatever the source, agricultural activities must be financed, and some microcredit most certainly ends up supporting traditional cropping and livestock production, directly or indirectly, by freeing up funds that would otherwise have to be saved for that purpose. By delinking loan uses and repayments, successful microlenders have far more forcefully stressed that repayments must be made regardless of the success or failure of a particular productive activity. This approach has dramatically increased repayment rates, even for loans to farming households. This feature is especially important when considering the financing of staple crops or livestock produced year in and year out, regardless of the availability of credit, and that do not require large (relative to annual return) up-front investments.

The development finance community has recently begun to better understand how poor households earn, spend, borrow, and accumulate money and other assets. For agricultural microfinance, the most important finding is that farming households are savers. In most agricultural communities, the fluctuating incomes that accompany crop cycles require households to save between planting seasons in order to eat and have enough money left to pay the costs of replanting in the next season. Farming households also try to diversify their income sources to tide them over between cycles.

Many farming households diversify their sources of income by engaging in a variety of farm and non-farm activities. Non-farm activities include all rural economic activity outside of agricultural production¹⁵ and often run counter-cyclically to agricultural activities, with most labor and resources tied up in agriculture during the crop season and available during the off-season. Household members engage in trading, rudimentary agricultural processing (such as rice husking),

Table 2 Non-farm Income and Employment in Rural Households
(percentage of total)

Region	Non-farm share of rural income, 1998	Non-farm share of rural full-time employment, 2002
Africa	42	11
East and Southern Africa	45	
West Africa	36	
Asia	32	25
East Asia	35	
South Asia	29	
Latin America	40	36

Note: Includes landless households. Data are for selected countries in each region. Income and employment figures were not available for the same year and reflect the latest available data.

Source: FAO, "The State of Food and Agriculture," 1998; Haggblade et al, "Strategies for Stimulating Poverty-Alleviating Growth in the Rural Non-farm Economy in Developing Countries," 2002.

day labor, and livestock husbandry, in addition to producing staple foods and cash crops. Household members may also travel to other parts of the country for seasonal employment on farms or employment in cities, or even go abroad and send back earnings (remittances). Different family members perform these activities and contribute all or part of their income to the family's savings.¹⁶

Non-farm income and employment are extremely important for rural (mainly farming) households in developing regions. The average share of non-farm household income is highest in Africa (42 percent) and Latin America (40 percent), but also significant in Asia (32 percent).

This variety of income-generating activities provides relatively steady cash flow for many farming households, which is why so many rural microfinance clients can make weekly loan payments over the course of a year when they borrow to invest in agriculture, an activity with a highly irregular cash flow.

Traditional agricultural lending tends to involve a huge variety of production loans that are narrowly designed for particular crops and livestock activities. For instance, in 1984 Bank Rakyat

Indonesia (which later became the world's most impressive model for good practice microfinance by a commercial bank) had 350 subsidized credit programs for food crops, cattle and poultry production, fisheries, tree crops, and the like—with an average repayment rate of 57 percent. For each program (or loan product), experts had carefully worked out the exact nature of the production cycle: required inputs, dates inputs were required, harvesting dates, processes, yields, and likely marketing channels and sales prices. Loan terms and conditions were strictly designed to fit these features for each productive activity.¹⁷ This approach continues to prevail in most agricultural finance programs in most countries.

If expected yields fail to materialize, market prices are low, or problems develop with marketing channels, lenders and borrowers usually revisit the original plans and calculate how the problems will affect farmers' ability to repay, without reference to their families' other financial flows and income-generating activities (or savings). This incomplete view of poor households and their income is largely responsible for the low repayment rates in agricultural finance.

Treating the Household as a Unit

Successful rural lenders recognize that farming households have multiple sources of income, and therefore multiple sources for loan payments.¹⁸ These institutions treat rural clients like the sophisticated financial managers they are and work to build a complete financial relationship with them. Moreover, such lenders make clear to their clients that repayment is expected regardless of whether a crop turns out as expected. By delinking crop and livestock loans from strict adherence to a particular production cycle and, instead, treating farming households as financial units, lenders can provide flexible loan products that respond to cycles without creating incentives for default.

For example, an agricultural lender might sit down with a family and discover that it has seed

left over from the previous year that it intends to use for planting, but needs a loan for fertilizer later in the production cycle. The lender may also discover that the family would prefer to pay off the fertilizer loan prior to the harvest with the son's wages as a day laborer, in order to clear the debt (and interest payments) more quickly and have the maximum amount of income from the harvest saved (hopefully, with the same financial institution) to see them through the months when there is no agricultural activity in the area (and consequently, no day-labor wages). In this instance, a flexible lender might offer a three-month loan for the fertilizer purchase, repayable on a weekly basis. It would not look like a traditional agricultural loan, but would clearly have the intended effect of supporting agricultural production.

A central thesis of the microlending methodology used by IPC (Internationale Projekt Consult), a German consulting firm that specializes in banking for poor people, is that the household should be treated as one financial unit, and that analysis of cash flow and repayment capacity should look at this unit, rather than just the income-generating activity being financed. IPC has applied this approach to its Latin American partners that have expanded into rural and agricultural lending. Financiera Calpiá in El Salvador, for example, initiated operations in 1988 and expanded into rural areas once its urban centers were fully established. Its agricultural operations are characterized by treating the farming household as one financial unit, basing loan criteria on repayment capacity, taking a flexible approach to collateral requirements, decentralizing decision making by well-trained loan officers, monitoring clients regularly to strengthen borrower-lender relationships, and using a management information system that reports arrears on a daily basis.¹⁹

Reflecting the importance of diversified income sources, many microfinance institutions with stable agricultural lending portfolios find that they have to minimize risk by excluding households

that rely on just one or perhaps two crops and have no off-farm income. Examples include Caja los Andes and PRODEM of Bolivia, and Financiera Calpiá of El Salvador.²⁰

Concerns about Loan Use

Agricultural finance has traditionally been advocated to support crop production, slow rural-urban migration, and improve poor people's lives by increasing food security, providing basic services, and promoting adoption of new technologies. These are vital social priorities, and it is appropriate (to an extent) to expect agricultural microfinance to serve them. But concerns about the purposes for which loans are provided have traditionally led to product designs that overemphasize the investment activities to be undertaken by borrowers—leading to a proliferation of products with varying terms and conditions, as with Bank Rakyat Indonesia in the case mentioned above.

Product proliferation can create unnecessary costs for lending institution (costs often covered by high interest rates or large subsidies), because the fungibility of money makes it difficult to predetermine how funds will be used or to supervise investments without excessive spending on client monitoring. This is not to say that clients lack clarity about why they borrow and what they intend to do with loans. Indeed, they know well the intended use of loans and other sources of funds, and often engage in matching behavior. That is, the clients match loan terms and conditions with expected revenue streams (from any source), so that the revenue that supports loan payments may have nothing to do with the intended use of the loan.

Most microcredit providers do not try to control the use of their loans. And although microcredit funds a wide variety of other personal and productive activities in rural areas, rural households also use such loans to finance agricultural and livestock activities. For example, given that

money is fungible, some poor families obviously use loans provided for trading to support agricultural activities. But because agricultural activities can be supported under conventional microfinance loan terms, microfinance practitioners do not consider their services agricultural finance. Moreover, the microcredit industry does not have good information on how much of its funding ends up in these activities, because it generally does not consider information on loan use particularly valuable or reliable.

Many Asian clients have long used microcredit for livestock and agricultural processing. One of the most common uses of microcredit in rural Asia is for agricultural activities, such as purchasing livestock for fattening (chicks, goats, pigs, cows) or daily production (laying hens, and milk cows and goats), or supporting rice cropping (especially in South Asia).²¹ These uses are often talked about in group meetings (many microloans are provided under group-lending arrangements, and the groups meet regularly to discuss loan status and needs), and are encouraged by program staff. Less discussed, and probably less prevalent, are investments in agricultural inputs (seed, fertilizer, wages for day laborers) made with microloans.

Smoothing Household Income

Within agricultural communities, microloans are undoubtedly often used to free up capital for farming activities that would otherwise be needed for daily living expenses, especially during lean times. Farming communities usually experience boom and bust cycles—both before and after harvests (in the case of crops) and between seasons (due to price fluctuations). After harvests, times are good and funds are plentiful. As the year progresses, funds become scarcer, especially when the next crop cycle begins and necessary investments have been made. If farming households have no access to finance during the lean times, they must hold back a larger share of their capital to meet consumption needs, forward-sell their future

harvest early at a low price in return for cash, or secure high-cost, short-term trader loans.

With access to microfinance (savings and remittance transfers as well as loans), households can invest more confidently in their primary income-generating activities because they have more options for meeting both expected expenditures and unexpected shocks. Microfinance can also free borrowers' own capital by performing an income-smoothing function, as well as directly fund agricultural investments that generate their own repayment flows (such as milk cows or laying hens). The income-smoothing role of microfinance is particularly important for farming households subject to extreme income variability during the course of any given year.

Feature 2

Character-Based Lending Techniques Are Combined with Technical Criteria in Selecting Borrowers, Setting Loan Terms, and Enforcing Repayment

If a lender has reliable knowledge of a potential client's character, as is the case with a well-functioning credit bureau, the lender can make a loan based on that person's history of repaying financial obligations and on its assessment of that person's financial situation and plans. But developing countries almost never have a credit reference system with good coverage of poor families. Micro-credit techniques were developed as a substitute for microlenders' lack of knowledge about potential clients' characters and willingness to repay debt. To serve small farmers and farmers in remote or marginal rural areas, group-based savings and lending techniques may be essential to mitigate risk, reduce operating costs, and enforce repayment.

Tools and Techniques

Whenever possible, microlenders should rely on a number of basic techniques—even if other

sections of the paper indicate that they have been successfully modified for agricultural microfinance. Perhaps the key to understanding this apparent contradiction is to assume that incorporating all these techniques of successful microcredit should be a starting point for agricultural microfinance, and that modifications should be made carefully, respecting the need for the overall approach to retain as many of the basic techniques as feasible. Many of the techniques used by microfinance organizations differ fundamentally from those of traditional agricultural credit schemes (box 1).

Microfinance institutions that have developed successful agricultural loan portfolios use more flexible collateral requirements for agricultural loans than for their other lending. They use a combination of personal guarantors and pledges on household and enterprise assets (including titled land and animals), rather than relying on land and property titles. Uganda's Centenary Rural Development Bank, for example, accepts livestock, personal guarantors, land without titles, household items, and business equipment as loan collateral. Caja los Andes in Bolivia takes pledged assets, but measures their value to the borrower rather than the recovery value to the bank. In rural areas, loans for less than US \$7,500 can be collateralized with farm or household assets, and unregistered land titles can be deposited with the bank as collateral for up to half of the value of a loan.²²

Bringing Specialized Agricultural Knowledge into the Credit Process

Traditional agricultural lenders have long employed specialized staff with training in crop and livestock production. Similarly, the few microfinance programs that have expanded into agricultural activities have found it desirable to hire agronomists and veterinarians to support loan decisions and methodologies. Just as urban microenterprise loan officers can quickly tell how

Box 1 Differences between Traditional Agricultural Lending and Microenterprise Credit

Traditional agricultural lending	Microenterprise credit
<i>Borrower selection, credit decisions, product designs</i>	
Bases credit decisions on projected income from future crop or livestock sales	Bases credit decisions on current repayment capacity
Typically uses feasibility studies to determine borrowers' capacity to repay	Often uses peer group information and past loan performance to determine the creditworthiness of borrowers
Funds all or most of a targeted activity based on its merits and the borrower's ability to carry it out	Uses short-term, incrementally increasing loans to establish relationships with clients and lower default risk. Thus microloans tend to be far smaller than agricultural loans to households with the same income level
Ties repayment to proceeds of the agricultural activity	Schedules frequent payments to take advantage of the multiple income sources of a borrower's household
Sometimes provides agricultural finance to small groups, which often administer rotating loan funds	Tends to use group mechanisms to gather client information and enforce loan contracts, but retains loan administration functions*
Often ties credit to the adoption of particular technologies, inputs, or marketing channels; often requires farmers to join associations or cooperatives	Does not tie credit to other services. Exceptions include programs that require compensating savings balances or provide minimal training on issues of social concern, such as maternal health or childhood nutrition
Often sets interest rates to be affordable within (narrowly defined) projections of returns on agricultural investments	Sets interest rates to fully cover costs, enabling microfinance institutions to engage in more operational activities—which lowers risk
Relies on trained technical staff (agronomists, husbandry specialists) or detailed analytical models (or both) to make loan decisions and monitor investment/ production programs	Relies on staff trained in lending methodology, not on client activities
<i>Following through with borrowers</i>	
Expects loan officers to spend most of their time developing and enforcing investment plans and ensuring production	Expects loan officers to focus on building relationships with clients, enforcing repayment, and understanding the performance of farming households' multiple economic activities
Expend enormous effort to ensure that loans are used according to predetermined plans	Understands that money is fungible and makes minimal attempts to control loan uses
Tends to be far more lax in the timing of payments, often assuming that farmers time their sales to achieve highest possible prices	Expend great energy enforcing rigid repayment discipline
Relies on extensive guidelines for multiple crops and livestock investment programs, expected cash flows, and repayment plans	Relies on a couple key indicators (such as loan or payment amount) to monitor repayment performance
Uses more rudimentary loan tracking systems	Develops efficient management information systems to facilitate immediate follow-up on late payments
* This practice refers primarily to solidarity group lending, rather than individual lending or village banking (which devolve some administration functions to larger groups)	

well a small shop is managed, specialized staff in rural areas can ascertain how well a farming activity is pursued without generating a complex, thorough production model for a specific activity. Specially trained loan officers can optimally adjust

the terms and conditions of an agricultural microfinance loan to the investment opportunity presented and the income flows of the farming household to minimize risk to the lender. In addition, models can be developed that systematize

such information to ensure more consistent analysis and inform loan officer decisions.

For example, Uganda's Centenary Rural Development Bank trained loan officers in agriculture and agribusiness to help them understand farming as a business, and thus more effectively monitor farmer clients.²³ Such skilled staff can develop sophisticated tools to support the credit decision process. Economic Credit Institution (EKI in Bosnian), a microfinance institution in Bosnia and Herzegovina, which holds about half of its portfolio in agriculture, uses spreadsheets for key agricultural products compiled by an agronomist. In addition to using this tool to conduct cash-flow analysis of proposed agricultural activities, EKI uses its experience in various agricultural sectors (cattle breeding, agriculture, apiculture) to evaluate potential loans.²⁴

Successful organizations also build their capacity for agricultural microfinance slowly and carefully. Before investing in a branch office, they first test a potential rural market. This step reduces the risks involved in expanding rural outreach. Calpiá (in El Salvador) reduces the risks of opening rural branches by first developing portfolios from neighboring branches and conducting market studies of new regions. Rural branches are set up only if their likely portfolios merit the required investments in infrastructure and human capital.²⁵ Banco del Estado de Chile spent two years adapting its microenterprise lending techniques before expanding into farming activities.²⁶ It also adapted agricultural finance techniques, for example, by integrating crop-based analysis into its wider client analysis and adjusting repayment schedules to take into account seasonal income cycles.

Feature 3 Savings Mechanisms Are Provided

Household savings continue to be the primary funding source for most private, smallholder, and microenterprise production and trade activities,

including farming. Yet most banks—savings, agricultural, and development—actively discourage small deposit accounts, considering them a costly liability. They discourage such deposits by requiring that potential account holders be referred to the bank by current clients, providing poor service at teller windows (meaning that clients must wait long periods to conduct transactions in the banks), requiring minimum balances to open or maintain accounts to avoid incurring monthly fees, and instituting documentation requirements almost as onerous as those required for microloan applications.

Many leading microfinance programs have learned from experience what academics at Ohio State University and elsewhere have gleaned from numerous studies of informal financial markets.²⁷ Virtually all rural households, no matter how poor, engage in a number of financial strategies to build assets, prepare for life events (such as weddings, funerals, and education costs) and emergencies, and cover daily transactions.²⁸ They save using a variety of non-financial means, such as accumulating livestock, jewelry, building materials, and staple crops. Some of these mechanisms have profound cultural roots, especially in the case of livestock.

In times of need, these assets can be sold for cash, though they have certain limitations. They are often not liquid and can be turned into cash only at a significant discount to their market value (if sold in a hurry). They are not safe—for example, animals can die, get sick, or be stolen. And they are not divisible, in case the saver needs only a small part of the value represented by the asset.

Many rural households engage in informal financial relationships among themselves. They may be members of rotating savings and credit associations, setting aside small amounts weekly or daily.²⁹ At the end of each collection period, one member receives the entire amount contributed by the group and uses it to buy major items or pay for major, planned expenses, such as

school fees or weddings. They also lend to each other and to family members, and save cash “under the mattress.” In fact, poor families have most of the same financial requirements as better-off families. No matter how poor they are, they have the same need to manage liquidity, conduct transactions, and accumulate assets. To do so, they have developed multiple informal mechanisms.

Basic deposit facilities would enable farming households to cover agricultural and household expenditures, make the interest payments needed to service credit obligations, and respond to emergencies in a timely fashion. Seen from this perspective, few such households would not want access to safe, liquid, savings accounts in formal banking institutions.

A few agricultural lenders have successfully taken on the savings challenge. The most notable has been Thailand’s Bank for Agriculture and Agricultural Cooperatives (BAAC),³⁰ which has evolved from a specialized agricultural lending institution into a more diversified rural bank providing a range of financial services.³¹ BAAC was established in 1966 as a government-owned agricultural development bank and is unusual among rural finance institutions due to its impressive scale and coverage.

In March 2003, BAAC had more than 600 offices across Thailand, serving over 5 million clients, with outstanding loans of \$5.8 billion and savings deposits of \$6.2 billion—and providing more than 90 percent of Thailand’s farming households with credit services.³² Although state-owned (the government remains BAAC’s dominant shareholder), BAAC is largely self-sufficient, and funds 80 percent of its loans through savings (deposits). BAAC introduced an aggressive savings mobilization campaign in 1987, and now offers a range of deposit products to meet client needs, including passbook savings, time deposits, and savings for a *hadj* (pilgrimage to Mecca).

In Nepal, Small Farmer Cooperatives, Ltd., or SFCLs, are the result of a long-term reform of an

agricultural development bank into member-based organizations (multi-service cooperatives). These cooperatives offer tailored agricultural and non-agricultural loan, savings, and insurance products. They are member-owned and -controlled and have an open membership policy toward poor farmers, defined as those with 0.5–1.0 hectare of land and less than half of average national per capita income. The cooperatives have 73,000 members, a third of whom are female. They have received technical assistance funded by the International Fund for Agricultural Development, Asian Development Bank, and German Agency for Technical Cooperation.³³

One of the most successful Nepalese small farmer cooperatives is in Anandavan: by July 2002, it had 861 members, 86 percent of them female.³⁴ In July 2003, its loan portfolio stood at 17.8 million rupees (US \$240,500), with no past-due loans and 14.6 million rupees (\$197,000) in savings. In addition, the cooperative has a 2.9-million rupee (\$39,000) capital fund, including paid-up and institutional capital. The cooperative offers 10 savings products to attract different types of members. Similarly, it addresses local poverty by providing innovative loan products for landless members (such as rickshaw loans) and flexible savings products.

In southern Brazil, membership in the Cooperativas de Credito Rural com Interacao Solidaria (Cresol) system of small farmer savings and loan cooperatives³⁵ has grown from fewer than 2,000 members in five cooperatives in 1996, to more than 31,000 in 73 cooperatives today. Members are poor, with half living below the poverty line, and 95 percent earning less than half of the average annual per-capita gross domestic product. Before joining these cooperatives, 85 percent of members had never taken out a loan, and half had never had a bank account.³⁶ Membership in another Brazilian system of farmer savings and loan cooperatives, SICREDI, has expanded rapidly in recent years, jumping from

210,000 members in 1999 to 577,500 in 2002, with a total of 129 cooperatives with 767 branches. By the end of 2002, SICREDI had US \$518 million in savings and \$315 million in outstanding loans (with a delinquency rate of 8 percent).³⁷

These institutions—along with others, such as the unit *desa* system of Bank Rakyat Indonesia, savings and credit cooperatives worldwide, and select other microfinance institutions—have shown that rural poor people will save if given the opportunity to do so in a well-organized, efficient operation that has well-designed, attractive financial instruments. All rural households, regardless of their income level or sources, can use deposit facilities to enhance their ability to manage liquidity and build capital assets.

Feature 4 **Portfolio Risk Is Highly Diversified**

Diversification is one of the primary risk mitigation strategies used by microfinance institutions, credit unions, and specialized banks located in rural areas. To contain their agriculture-related risks and operating costs, microfinance institutions tend to limit agricultural lending to less than one-third of their portfolios. Agriculture accounts for about 25 percent of the portfolio for *Confianza* (a rural finance institution in Peru),

but only 6 percent for Bolivia's *Caja los Andes*, with a similar level for Uganda's *Centenary Bank* (although the share is notably higher for El Salvador's *Calpiá*, which follows a similar approach to agricultural microfinance).³⁸

A number of microfinance institutions that have developed stable agricultural lending portfolios also minimize risk by excluding households that rely on just one or perhaps two crops and have no off-farm income. *Caja los Andes* and *PRODEM* of Bolivia, *Calpiá* of El Salvador, and a number of other microfinance institutions that have expanded into agricultural lending require that their clients have diversified sources of income. In addition to non-crop income sources, most of *Caja los Andes*' agricultural clients have two or more growing seasons and access to established markets for their crops.³⁹

This practice is in line with that of successful rural credit unions, which typically cap their agricultural lending at 10–25 percent of their portfolio. The range of activities supported is diverse, so that if, for example, a disease kills most of the pigs in a region, the crisis does not have a catastrophic effect on the lender's portfolio. The risk of having an undiversified portfolio is illustrated by *Caja Rural San Martin*, a rural finance institution in Peru (box 2).

Box 2 Peru: Caja Rural San Martin—Diversifying Its Loan Portfolio

Between 1994 and 2000, more than half of *Caja Rural San Martin*'s portfolio involved agriculture, mostly in the form of loans to small and medium-size rice farmers. But in 1998–99 Peru's rice crop was severely damaged by the El Niño phenomenon. Heavy losses in crop yields caused a steep rise in prices that attracted many new producers, resulting in overproduction and sending rice prices to an all-time low. Then in 2000–01, a plague destroyed the rice crop for many of the bank's clients. At the same time, Alberto Fujimori's regime introduced populist policies promoting debt forgiveness and restricting banks from imposing further loan recovery measures on delinquent farmers. All these events caused a severe decline in the quality of *Caja Rural San Martin*'s loan portfolio.

The events of 1998–2001 forced the bank to become more risk averse and diversify its portfolio. After nearly halving new agricultural loans in 2001, the bank later discontinued lending for rice production altogether. Since 2002 it has provided loans only to farmers who have well-established farm enterprises, own irrigated land, and can provide land and chattel guarantees. The bank now has a diversified loan portfolio, with microenterprise, housing, and consumer loans in addition to agriculture loans. Portfolio quality has improved as a result, and *Caja Rural San Martin* is now less vulnerable to production and price risks. By November 2002, its outstanding loan portfolio was \$16.3 million, with more than 13,000 borrowers and a portfolio at risk (with payments more than 30 days overdue) of 8 percent.

Source: Rubio, "Caja Rural San Martin," 2002.

Portfolio diversification has both facilitated and limited the expansion of microfinance institutions into agricultural lending. When institutions have sought to expand such lending by, for example, exceeding a set proportion of agricultural loans or channeling government funds into farming, they have sometimes faced dire consequences (such as severe repayment and liquidity crises).⁴⁰ Portfolio diversification policies affect only the proportion of agricultural lending relative to non-agricultural lending within a portfolio, not necessarily the absolute volume of such lending. For example, although the share of Confianza's agricultural portfolio has fallen as it has diversified from its original focus on agricultural lending, the volume of its lending to agriculture has almost quadrupled.⁴¹

Feature 5 Loan Terms and Conditions Are Adjusted to Accommodate Cyclical Cash Flows and Bulky Investments

Agricultural activities can produce cash flows that are cyclical (determined by crop or poultry production schedules) or that have long lead-times before providing a return (e.g., tree crops or beef cattle). This can influence the income and expenditure patterns for the wider rural community where agriculture is a significant economic activity, with other enterprise activities (and household budgets) also affected.

Cyclical Cash Flows

Agricultural production often requires staggered cash disbursements to meet production schedules, while allowing for large lump-sum payments at, or soon after, harvest or the slaughter or sale of livestock. This is particularly true for farmers who use modern inputs, such as improved seed, fertilizer, and pesticide, as well as hired labor for harvesting. In such cases, financing arrangements require

balloon repayments at harvest and the flexibility to avoid situations where households are forced to sell produce when markets are flooded and prices are low.

In many parts of the world, crop cycles produce widely varying cash flows that make regular, significant loan payments difficult at certain times of the year. This is particularly the case in poor, rural areas that depend on agricultural production for cash income. In all of these cases, farming households must cope with widely varying cash flows that do not match the rigid repayment schedules required by many microfinance institutions.

Promoting Flexible Payment Options

A few microfinance institutions have added true flexibility to the loan products offered to farming households. These institutions have adapted loans to the cash flows of agricultural activities and incorporated an agro-economic component of loan analysis to do so, while not neglecting the multiple other potential sources of income of borrowing households. This flexibility relates only to how loans are structured, not the seriousness given to their repayment.

In the early-mid 1990s, Caja los Andes in Bolivia faced an increasingly competitive urban market and saw an opportunity in the decline of agricultural credit provided by state banks. It recognized that its loan analysis techniques and repayment schedules were designed for urban-based or trade and service activities, and so were not appropriate for agricultural activities because they could produce delinquency problems and reduce farmers' demand for loans.⁴²

Caja los Andes decided to fill the gap left by state banks by offering loans tailored to the needs of small farmers, and took steps to mitigate the risks associated with such lending. In 1995 it opened its first rural branch in Punata, near Cochabamba. Today, most of its rural and agricultural lending is administered by branches located in towns and larger villages, and its agricultural lending is restricted to certain regions to contain costs.

Caja Los Andes offers the following repayment options to better suit the cash flows of its clients' agricultural activities, relative to the loan products it offers in cities:

- One-time payment of capital and interest
- Periodic payments of equal amounts
- Periodic interest payments, with payment of capital at the end of the loan term
- Plans with differing, irregular payments (for clients with several crops or with livestock that must be fattened for market)

Caja Los Andes also offers loans in up to three installments to better fit the flow of farmers' incomes and expenses. For example, it offers loan plans with two or three disbursements and one final payment of capital and interest.

PRODEM, another rural microfinance institution in Bolivia uses *cuotas personalizadas* ("differential" or "personalized" installments), which allow members of solidarity groups to tailor repayments to their individual cash flows. PRODEM's market research indicated that not only farmers, but workers in nonfarm occupations such as commerce, would benefit from such flexibility. For example, the cash flows of rural grocers were found to be significantly higher in months when dominant local crops (soya, rice, cane) were harvested. Similarly, the program allows coffee growers to pay only interest in February and May, then repay capital in four monthly installments once the coffee harvest begins in June. PRODEM also reduces risk by capping final loan payments at 60 percent of loan amounts and limiting the loan portfolios of its branches to 30 percent in any given economic sector (otherwise PRODEM would have to increase loan-loss provisioning accordingly).⁴³

In Peru, Confianza introduced flexible loan terms, disbursements, and payment schedules during 2000–01, with borrowers able to receive loans in up to three disbursements and have repayments partly or fully amortized over the term of the loan.

By learning from microfinance institutions elsewhere, introducing comprehensive changes to its agricultural lending, and diversifying away from a heavy reliance on agriculture, Confianza recovered from a disastrous situation in 1999, where more than half of its portfolio was in arrears. It now has a sustainable portfolio and one of the highest rates of return of any Peruvian microfinance institution (with a 19 percent adjusted return on equity). Moreover, Confianza's agricultural portfolio, with a portfolio at risk (defined as the total value of loans with payments more than 30 days overdue as a percentage of total portfolio) of just 3.5 percent in 2003, has a lower delinquency rate than does its overall portfolio.⁴⁴

To adapt products to fit agricultural cycles, monitor their uptake and performance, and improve their design over time, financial institutions need an adequate management information system (MIS) and a client feedback system to provide information on products, service levels, and client needs and opinions. Product adaptations should be introduced only after careful market research, which is backed by data from both MISs and client feedback systems. As noted, PRODEM conducted market research in Bolivia, supplemented by branch-level monitoring and loan officer feedback, to assess client needs before introducing flexible repayment options and new products (such as money transfers, microleasing, and savings products).⁴⁵

Many financial service providers, however, receive insufficient client feedback and are unable to adequately monitor the performance of individual products. For example, despite taking many positive steps to increase its agricultural lending, Uganda's Centenary Bank used an MIS that was unable to effectively segregate the bank's loan portfolio by product. Partly because its systems did not provide adequate information for analysis and decision making, the bank's attempts to expand into agricultural lending in the late 1990s were slowed and eventually undermined.⁴⁶

Addressing the Challenge of Liquidity Management

Financial institutions that tailor their loan products to agricultural cycles may experience challenges in liquidity management (and higher credit risk) and periods of low asset productivity during off-seasons (in effect a form of “seasonal” operation that ultimately lowers the institution’s efficiency). An agricultural finance institution in Georgia, for example, tailors its loan products to crop and livestock production cycles, and most of its one-year loans involve balloon payments. As a result, the institution has had highly seasonal loan cycles, which results in periods of excess and then tight liquidity over the year (see figure 1). This institution is not unique—many other traditional agricultural finance institutions have similar peaks and troughs in cash flows and liquidity.⁴⁷

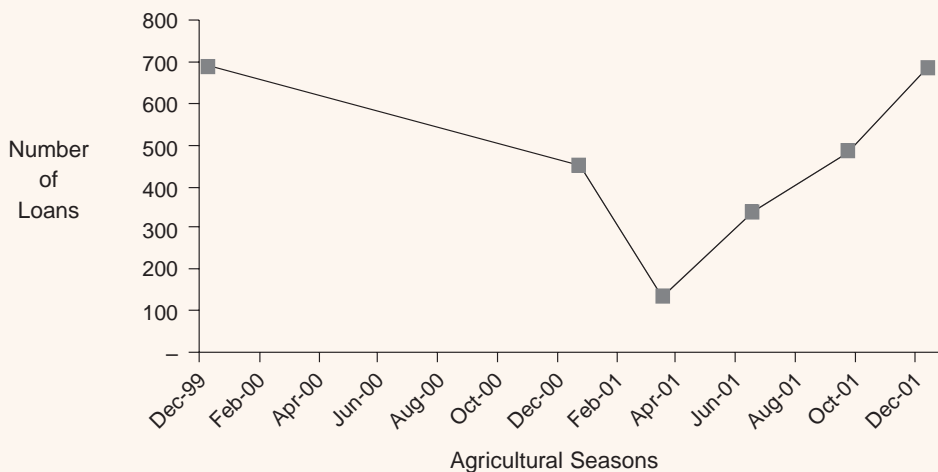
Rural lenders can mitigate liquidity constraints by negotiating liquidity facilities with banking institutions at times of the year when loans are in high demand. Cooperatives in many parts of the world use this approach. Fluctuations in liquidity and operating efficiency can also be tackled by maintaining diverse loan portfolios not dominated by agricultural lending, as discussed above. And

by offering deposit products, financial institutions can offer clients the choice of financing seasonal needs with savings, loans, or a mix of the two, as well as with remittances transferred from household members working in another part of the country or abroad.

Long-term investment loans (those with repayment terms more than a year long) also increase liquidity risk, and so may require lenders to maintain sufficient long-term liabilities, equity, or other sources of funding. Rural financial institutions may be able to use equity or donor grants to finance increased long-term lending. (Many such institutions have high levels of equity relative to assets.) But if other funding sources—such as client savings, domestic bond issues, bank loans (or certificates of deposit), or overseas borrowing—are used to finance long-term lending, more sophisticated asset-liability management capacity is required to manage the resulting interest rate, liquidity, and foreign exchange risks.⁴⁸

Long-term loans also create challenges for liquidity management (see next section). Such loans account for more than half the value of outstanding loans in Thailand’s BAAC, and it uses

Figure 1 Loans Disbursed by an Agricultural Finance Institution in Georgia (December 1991–2001)



Source: ACDI/VOCA, 2002.

long-term deposits and government-negotiated loans from international financial institutions such as the World Bank and Asian Development Bank to match these assets. About two-thirds of the bank's long-term loans are financed by domestic borrowing and long-term deposits. BAAC has actively promoted time deposits, including a three-year fixed deposit product, to fund its long-term lending operations. Access to long-term loans and client time deposits has allowed BAAC to better match the profiles of its medium- and long-term loans, and to improve the term match between its assets and liabilities.

Bulky Investments

Many of the investment opportunities available to farming households present challenges that do not arise in normal microcredit activities. For example, the value of a capital asset or other investment is often much larger than a household's annual income (and the portion of that income that can be used to repay a loan). Acquisition of a traction animal or an irrigation pump can provide immediate income for its owner, but a loan to buy such an asset could take more than a year to pay back. Tree and bush crops do not even have the advantage of immediate income, as they often require large up-front investments but entail a substantial wait before coming into full production—during which time the farmer must forgo income that could have been generated by the land set aside for them. According to conventional agriculture finance, such investments should be funded (more or less entirely) by long-term loans. Few urban microenterprises face investment opportunities that are similarly large relative to their current income flows. (Housing acquisition is an exception.)

Long-Term Lending

Long-term loans often involve a series of disbursements to fund the different stages of crop production or livestock husbandry, with a single or small number of repayments due at the end of the cycle.

In this, traditional agricultural loans seek to match the cash-flow cycle associated with the particular activity from which repayment will be forthcoming. This approach makes sense from a cash-flow perspective, but it has led to an association, in the minds of lenders and borrowers alike, between the use of a loan and the potential to repay it. If a crop fails, the household may feel entitled to default on the loan associated with that crop, regardless of how well the farming household has done in its other economic activities (including other crops). Successful long-term lenders in agriculture are few and far between in developing countries; a recent Food and Agriculture Organization (FAO) study found only a handful.⁴⁹

Loans that match long-term investment cash flows (as opposed to working capital loans for shorter-term uses, such as inputs and marketing) are not a feature of classic microcredit operations. Microcredit uses a range of techniques to lower risks and promote high repayment rates, including frequent repayments, short terms, high interest rates, and loans for existing rather than new activities. But these techniques may not be directly transferable for larger loans used to finance long-term investments, particularly when income streams are delayed and loan analysis requires understanding the activity being financed. The risk management strategy of setting loan payments at less than a household's income (which limits the corresponding loan size), commonly used by microfinance institutions, may also be inappropriate, because the point of long-term agricultural investments is often to expand income-earning capacity. In addition, the risk of climatic, political, or price events that can negatively affect agricultural activities is higher over several seasons than it is during one, making longer-term financing more risky for lenders.

The few examples of successful longer-term lending uncovered by CGAP have been state- or member-owned institutions, where the priorities of client-members have overcome the institutions'

reluctance to provide what are understood as more demanding, risky loans. BAAC is a prime example of state-mandated term finance to agriculture. BAAC classifies its loan terms as short (6–18 months), medium (up to 3 years), or long (up to 15 years). In 1999 medium- and long-term loans accounted for 29 percent of the number and more than 50 percent of the value of BAAC's portfolio.⁵⁰

BAAC has engaged in longer-term lending to agriculture partly because of its state-influenced mandate to finance agricultural activities (meaning that it does not have the freedom to select only easier-to-finance, shorter-term activities). Somewhat contrary to expectations, given the increased probability of negative price changes or weather events over time, the portfolio quality for BAAC's medium- and long-term loans is better than for its short-term loans: 6 percent of the former have payments overdue more than one year, compared with 11 percent of the latter.⁵¹ But these figures should be treated with caution because delinquency can fluctuate markedly over the course of a year. The size, diversity, and country-wide coverage of BAAC's portfolio, together with the bank's access to term deposits and longer-term funds from international financial institutions, facilitate its ability to manage the risks of its longer-term investment loans.

Nepal's small farmer cooperatives may not be driven by the state (although they do receive some loans from the government-owned Agricultural Development Bank), but as membership-based organizations, they are more responsive to clients. The cooperatives offer 18 credit and deposit products tailored to client activities. These products include long-term financing (box 3), which the cooperatives fund using a mix of internal savings and long-term credit lines from the Agricultural Development Bank (channeled in some cases through the Sana Kisan Bikas Bank).

Options for Financing Long-Term Investments

In the absence of credit, farmers typically fund some long-term investments using savings (or remittances),⁵² a practice that allows them to diversify into new activities or adopt new technologies without assuming the greater risk of credit.

Incremental Agricultural Microfinance

Microfinance providers have learned that poor people typically break down large, long-term investments into more affordable, less risky stages. For example, when constructing a house, a family may build the first floor initially and the second floor a few years later, or add rooms over time. When applied to agriculture, this practice implies that small farmers may finance investments incrementally, through a series of small

Box 3 Nepal: Small Farmer Cooperatives—Tailoring Long-Term Loan Products to Agricultural Activities

SFCL Prithvinagar is a small farmer cooperative located in a tea-growing area of Nepal near the Indian border. Previously, its loan products were not sufficiently large or long-term to allow members to invest in tea production. So, it introduced an eight-year loan that covers three-quarters of the average cost of starting a small tea farm (0.6 hectare) and has a grace period of three years. Interest payments are made every three months between the third and fifth years of the loan term, while principal installments are made every six months between the sixth and eighth years. The cooperative also offers tea farmers marketing services to help ensure loan repayments and higher prices for harvests. Tea leaves are collected from the farmers and marketed collectively, and the sales proceeds are returned to them after deducting loan payments.

An SFCL in Bhumistan offers a similar loan for the purchase of buffalo. The loan has a term of three years, with principal installments paid every three months for the first nine months and the fourth payment required two years later, when the three-month schedule begins again. This gap in the repayment schedule allows the buffalo to have calves, during which time the borrower would not earn any money from the animal.

Source: Wehnert and Shakya, "Are SFCLs Viable Microfinance Organizations?" 2001; Staschen, "Financial Technology of Small Farmer Cooperatives, Ltd. (SFCLs)", 2001.

loans—for example, buying a few cattle each year or gradually extending the area planted with tree crops—rather than going to scale at the start.

In addition, lenders may wish to provide long-term loans only to borrowers with whom they have already developed financial relationships through series of smaller, shorter-term loans for working capital. This practice is common among microfinance institutions that offer long-term loans in urban areas, albeit for home improvements, vehicle purchases, or capital asset acquisition.

Leasing

An inability to produce an effective collateral guarantee can be a significant obstacle for farming households seeking to finance equipment purchases. In many countries, land may not constitute an effective guarantee, either due to lack of land titling or judicial or political reluctance to enforce legal contracts (e.g., claiming land in compensation of non-payment on a loan) that would drive poor farmers away from their means of livelihood. Leasing equipment to farming households offers a low-risk way to finance long-term agricultural investments, and can offer both a solution to lack of usable collateral and tax advantages, depending on the country's tax code. When lenders maintain ownership of leased assets,

loan recovery can be faster and cheaper in the event of repayment problems because intervention by the courts is often avoided. A study in Bolivia and Ecuador found that leased equipment was typically recovered one or two months faster than the year required to recover loan collateral, though in other Latin American countries there was less or little difference.⁵³

Lenders can also acquire expertise in the markets for whatever equipment they lease, enabling them to sell repossessed assets at higher prices and lower transaction costs than otherwise. Moreover, lenders may not even need to sell repossessed assets—they can often lease them to other clients (box 4).

Although leasing is widespread for agricultural equipment in developed countries and is increasingly being used by microfinance institutions for non-agricultural equipment, it is not widely used for small-scale agricultural equipment in developing countries.⁵⁴ Tax and depreciation rules may not favor leasing, court systems may make repossessing leased items costly or slow, and secondary markets for repossessed equipment may be thin.

In 2002 the Development Finance Company of Uganda (DFCU) Leasing, a subsidiary of DFCU, Ltd., decided to move down market from

Box 4 Madagascar: CECAM—Providing Microleases for Agriculture

CECAM, a network of more than 150 local banks and credit unions in rural Madagascar, has managed to overcome challenges common to agricultural microleasing. Its microleases finance capital equipment for agriculture, livestock rearing, rural crafts, and domestic production (such as sewing). In 2001 the network had 1,800 leaseholders with an average lease of US \$450. CECAM has avoided problems associated with leasing to small farmers by:

- using flexible repayment schedules that fit clients' production cycles;
- requiring larger down payments on new equipment than is common in leasing arrangements (40 percent, instead of 20 percent); and
- leasing and releasing used equipment, rather than trying to sell it in thin secondary markets.

In addition, CECAM uses group mechanisms for client analysis and monitoring. As noted elsewhere in this paper, the membership-driven nature of cooperatives and credit unions, such as CECAM and Nepal's small farmer cooperatives, appears to make them willing to take greater risks (or make greater efforts to mitigate risks) to meet the financing needs of their members.

Source: Wampfler and Mercoiret, "Microfinance and Producers' Organizations: Roles and Partnerships in the Context of Liberalization," 2001; World Bank, *Agriculture Investment Sourcebook*, 2004; FAO, "Term Financing in Agriculture," 2003.

its traditional larger scale operations and also lease to small farmers (assisted by a US \$1 million matching grant from the UK Department for International Development). But the company encountered portfolio quality problems, with delinquency for its agricultural microleasing operations estimated to be up to three times the 15 percent for its overall portfolio in 2003.⁵⁵ Since ultimate loan recovery is made more certain by the ability to repossess equipment and lease it to a new client, delinquency can be tolerated to some extent. Still, the future of the company's micro-leasing remains in doubt.

For lenders the attractiveness of leasing relative to lending, apart from stronger loan recovery, largely depends on a country's legal, tax, and accounting systems. Bank regulations may permit financial leasing to be conducted only through subsidiaries, and in some developing countries tax regimes are disadvantageous to financial leasing for clients that do not pay profit or value added taxes (that is, most informal sector clients).⁵⁶ Where steps have been taken to improve legal and tax frameworks for leasing, as in several Central Asian countries in recent years (with support from the International Finance Corporation), the practice has expanded notably—though it is not clear how much of this is agricultural leasing.

For example, in the second half of 2002, the Uzbekistan parliament overhauled leasing legislation and made taxation on leasing comparable to taxation on other forms of financing. Changes were made to the civil, tax, and customs codes and to the law on leasing. As a result, leasing payments are no longer subject to the value-added tax and customs fees, and the value-added tax is no longer applied to equipment imported for leasing—resolving two of the biggest obstacles to leasing viability. In addition, lessors are allowed to deduct from their taxable income the interest paid on loans used to purchase assets for leasing. The leasing market has grown markedly since these measures were introduced. By mid-2003, the leasing

portfolio of Uzbek companies was 48 percent larger than in 2001; for banks the portfolio was 30 percent larger, and two new banks had entered the market.⁵⁷

Feature 6

Contractual Arrangements Reduce Price Risk, Enhance Production Quality, and Help Guarantee Repayment

Agricultural lenders have consistently sought to mitigate the risks inherent in agricultural production, many of which cannot be controlled by small farmers, regardless of their skills. Some of these risks are posed by catastrophic natural disasters (droughts, hurricanes, etc). Some are posed by seasonal weather patterns that vary by year and change the amount and timing of available water, the prevalence of pests, and the yields of crops. Some risks are only relatively controllable, such as the quality of seed and fertilizer and the timing of certain agricultural activities (planting, harvesting, and so on).

Agricultural Complexities, Credit, and Contracts

Because of the complexity of production risks, many lenders feel that small farmers require far more support than simply receiving loans, especially if they are engaged in the production of a complex crop. Such lenders offer technical assistance and other types of support directly to farmers, either because they seek to improve farm practices as part of an integrated development program or to guarantee minimum yields and quality of commodities for processing or resale.

Traditional Agricultural Lending

In many developing countries, farming households receive most of their agricultural credit not from banks or microfinance institutions but from agribusinesses—traders, processors, exporters, and other product-market actors. These are not traditional lenders, as they are mostly not

financial institutions and are not engaged in lending as a primary activity. Rather, they lend out of necessity (no one else will lend to farmers) or to generate an additional source of income. Agribusiness credit may be in cash or in kind (mostly in the form of inputs, such as seed and fertilizer). About three-quarters of trader lending in the Sindh region of Pakistan, for example, is in kind—primarily seed, fertilizer, and pesticide.⁵⁸ Credit in the product-market system is closely linked to transactions, as the length of typical credit arrangements makes evident: ranging from just a few days (for stocks provided by suppliers to traders) to the entire growing season (for input credit to producers).

Leading agribusinesses across Southern Africa are estimated to have provided about US \$91 million in credit to more than 530,000 rural households between 2001 and 2003.⁵⁹ Four out of five rice mills in India surveyed by the Food and Agriculture Organization (FAO) offer advance payments to farmers to cover input costs; such arrangements cover about half of the total value of the crop. Processors may also channel credit through traders, rather than directly to farmers. Two-thirds of Indian rice traders surveyed by the FAO traded on a commission basis, with funding from millers.⁶⁰

Traders, processors, other agribusinesses, and individuals reduce the production and operational risks associated with lending to farmers by linking credit to the provision of technical advice (such as on input use or on what crop variety to grow to meet market demands), or timely delivery of appropriate inputs (seed, fertilizer), or by building relationships with farmers over one or more years. Many also tie credit to subsequent sales of produce, a practice often called *interlocking* or *interlinked contracts* because it provides inputs on credit based on the borrower's expected harvest. Operating costs for providing credit can be low, because credit is built into crop purchase and input supply transactions with farmers, for which

agribusinesses may have existing physical infrastructure (such as warehouses), agents, processing facilities, information technology systems, farmer networks, and market knowledge.

Contract Farming

Because many agroindustries participate in competitive export markets, some with high entry standards, or in increasingly demanding national markets, they require more control over the volume and quality of their product than do purchasers of agricultural produce sold in local markets. For example, processors, wholesalers, and other buyers in a range of agricultural markets provide inputs on credit (in cash or in kind) to help ensure that farmers generate produce of sufficient quality and quantity, and often tie this credit to purchase agreements.⁶¹

This “contract” farming is a formal type of agribusiness credit. Repayment of the input credit is deducted when the farmer sells the produce. Contract farming developed as a private sector response to quality and quantity concerns. Tobacco and seed companies, coffee and sugar mills, dairies and slaughterhouses, cotton boards, and even wholesale buyers for supermarkets have developed packages that combine elements of technical assistance, input provision, marketing assistance, price guarantees, and finance as a way of ensuring the supply of a sufficient quantity and quality of a particular product (box 5). By building formal contractual relationships with farmers, contract farming (including outgrower schemes, the most formalized version of contract farming) reduce the risk for that farmers will side-sell a portion of the contracted amount to other buyers.

Contract farming—as opposed to trader credit—is the most common form of credit for small farmers provided by private companies in parts of East and Southern Africa. The Kenya Tea Development Agency (a private company), for example, operates a fertilizer credit scheme involving more than 400,000 small farmers, to whom it disburses US \$15.5 million a year.⁶² There are

Box 5 Costa Rica: Hortifruti and CSU—Contract Farming by Supermarket Chains

Corporación de Supermercados Unidos (CSU), a supermarket chain based in Costa Rica, has a technical assistance and training program to help its suppliers adopt higher quality and safety standards. It relies on a specialized wholesaler, Hortifruti, to procure its fresh fruits and vegetables. Until 1990 most of Hortifruti's suppliers were conventional wholesalers. But as it began to require larger volumes of produce of standardized quality, it developed a network of 200 preferred suppliers (farmers and packers). Seventy percent of these preferred suppliers are small farmers—although 80 percent of the volume purchased by Hortifruti is produced by medium-size or large packers (who integrate the grower function).

Hortifruti works closely with these growers, providing financing, technical assistance in production and post-harvest handling, and packing materials. In return, farmers sign contracts committing to sell an agreed volume of produce to Hortifruti. Each contract specifies a production calendar and required volume and quality of produce, and assigns a bar code for each farmer's produce. Hortifruti's field buyers and agronomists visit suppliers to monitor crop calendars and production practices. In addition, its quality assurance unit enforces quality and safety standards. Hortifruti now buys only about 15 percent of its produce from conventional wholesalers. Moreover, the preferred supplier system has cut costs by about 40 percent due to lower product losses and waste as quality has improved.

Source: Alvarado and Charmel, "The Rapid Rise of Supermarkets in Costa Rica," 2002; Berdigué et al, "The Rise of Supermarkets in Central America," 2003.

200,000 outgrowers in Kenya's sugar industry, and contract farming also underpins the country's tobacco sector. Similarly, in Mozambique, tobacco and cotton companies provided about \$2 million in input credit to an estimated 270,000 smallholders during the 2003/03 season.⁶³

Challenges of Contractual Arrangements

Although agribusiness credit is widespread and seems to have filled much of the "gap" left in a number of countries caused by reduced donor financing of agriculture, it has fundamental limitations. Agribusiness provides a narrow range of financial products that primarily consist of seasonal credit and short-term advances for certain key crops.⁶⁴ There is often no explicit interest rate, although rates as high as 5 percent a month are quoted for input loans from rice traders to farmers in the Philippines.⁶⁵ Instead of paying interest rates, farmers may be expected to accept discounts on the prices paid for their produce.

Many agribusinesses and individual buyers would prefer not to have to offer inputs on credit and lack the skills (possessed by real financial institutions) to price and monitor credit. Buyers often provide input credit simply to secure a sufficient supply of decent-quality product, or to cover the seasonal cash shortages of their clients (such as traders or suppliers). This option may not be

viable for basic staple crops in markets with a large number of suppliers or marketing agents, or in situations where quality control is hard to enforce. But as discussed below, links to agribusinesses might provide microfinance institutions with vital access to a large, untapped market of potential clients.

Standardization requirements resulting from increasingly demanding buyer practices can, however, cause a loss of credit from buyers and so marginalize small farmers. For example, while farmers consider it beneficial to be part of the network from which Hortifruti buys produce (see box 5), small farmers have a harder time meeting the volume, quality, and timing requirements. To minimize risk and transaction costs, Hortifruti seeks low turnover in its pool of growers. Similarly, farmers are keen to stay in the pool because membership reduces their production and market risks—they receive necessary inputs on time, good advice on how to use them, and a guaranteed market. Farmers that fail to meet standards (for example, by overusing pesticide) are not immediately delisted, but given training and assistance to achieve required standards. Still, high quality and production requirements result in fairly significant turnover among smaller, less capitalized growers.

Agribusiness may also be reluctant to provide credit if there is potential for fraud when employees handle funds, if suitable information and client tracking systems are lacking (making credit provision difficult to manage), and if farmers engage in side-selling. For example, after experimenting for some time, a leading agribusiness company in Mozambique, Export Marketing, became wary of providing input on credit. It no longer engages in contract farming, preferring to buy produce in cash from a network of buying posts linked to warehouses. The company said that effective management of contract farming was extremely difficult because of weak contract enforcement and transport infrastructure, corruption among its produce buyers when handling money, and lack of law enforcement options to protect itself against side-selling. Cheetah, a Dutch company specializing in paprika production, found that operational challenges in Malawi and Zambia (poor roads, scattered producers, farmers' lack of experience with commercial farming) resulted in much higher operating costs than it had predicted, and its 2002–03 pilot contract farming scheme failed in both countries.⁶⁶

Connecting Agribusiness and Agricultural Microfinance—Emerging Approaches

Financial institutions and specialized microfinance providers may be able to capitalize on the huge potential that agribusiness offers small farmers in terms of low-cost, large-scale financial services—while compensating for the deficiencies described above. Financial institutions have the expertise, systems, and technology needed to offer a range of financial products with clear prices, tailored information, and effective monitoring systems; agribusinesses know individual clients, crops, prices, and markets. In addition, agribusinesses already have networks to distribute inputs (including credit) and collect produce (and repayments) from farmers—networks that may be much more extensive than the

branch networks or other delivery mechanisms of financial institutions.

If a financial institution simply replaces an agribusiness as a provider of agricultural credit, and no link is established to the business's advice, market access, and knowledge about inputs, then the potential for lowering costs and operational risks will be lost.⁶⁷ But several emerging approaches offer financial institutions the opportunity to build on experiences with agribusiness credit, and agribusinesses the opportunity to take advantage of financial service models. Several of these approaches are still evolving, and the learning process, as they evolve, offers valuable insights to financial institutions wishing to adopt them.

Financial Institutions, Contract Loan Officers, or Other Intermediaries

These intermediaries select and monitor farmer clients and ensure that they can access services and inputs from agribusiness buyers and suppliers. This model was used by Banco Wiese in Peru. CES Solidaridad, a non-governmental organization (NGO), acted as an agent (or broker) for Banco Wiese, selecting and providing technical assistance to groups of two or three farmers located near one another.⁶⁸ Banco Wiese provided the loans, and CES Solidaridad received a 2.5 percent commission on each loan, with an additional 1.5 percent paid upon successful repayment. This arrangement had excellent repayment performance, and by 1998, Banco Wiese had an outstanding portfolio in such loans in excess of US \$3 million.⁶⁹

Linked Services Between Financial Institutions and Agribusinesses

Under this approach, a farmer receives a loan from a bank or microfinance institution, and the repayment is deducted from the price that an agribusiness pays for the farmer's crop. The agribusiness may also provide inputs and advice to the farmer, or these inputs may be provided by a third party—as in the three-way model used by Mahindra Shubhlabh (MSSL), which operates a

Box 6 India: Mahindra Shubhlabh—Linking Banks, Agribusinesses, and an Input Provider

Mahindra Shubhlabh (MSSL) is part of the Mahindra and the Mahindra empire (the world's third largest tractor maker), and runs commercial agriculture support centers all over India. These centers, and smaller franchises at the village level, serve as one-stop shops where (mostly paddy) farmers can receive loans and technical assistance, rent specialized equipment (harvesters, tillers, and the like), and buy seed and other inputs. Loans range from 15,000 rupees (about US \$350) to 100,000 rupees (about \$3,000) per season, with an average loan of just over \$500.

MSSL facilitates farmers' access to credit by acting as an agent for banks, including ICICI Bank (India's second largest), and recommending that the banks provide loans to farmers that it is providing with other services. Agribusiness buyers are also involved, with a three-way agreement whereby MSSL recommends a client to ICICI for credit, and the client (farmer) receives inputs on (ICICI) credit from MSSL after pledging its produce to a buyer. The buyer repays the loan at the end of the season out of the sale proceeds from the farmer's output. MSSL receives 1.5 percent of the loan value for its loan processing and supervision services, dependent on the loan being repaid. In early 2004, this arrangement was used by 45 MSSL outlets, with 5,600 active clients.

Source: Hess, "Innovative Financial Services for India," 2002; correspondence between author (Pearce) and Kairas Vakharia, CEO of Mahindra Shubhlabh, 2003; CGAP data.

nationwide network of agriculture service centers in India (box 6).

The three-way arrangement between MSSL, ICICI Bank, and agribusiness buyers outlined in box 6 reduces operational risks for lenders through:

- the quality of services and inputs that MSSL provides to farmers;
- MSSL's client knowledge in deciding whether to recommend farmers for loans; and
- the link to buyers.

This kind of arrangement also reduces operational risks for farmers associated with markets, and increases small farmers' limited access to good market opportunities.

Mahindra Shubhlabh has found, however, that communicating with banks on behalf of individual clients can be costly. As a result, it is introducing an alternative model where banks make loans to its service centers (rather than directly to farmers), and it provides farmers with loans for inputs. This model should still provide reduced operational risk for both the lender and the farmers.

Agribusinesses and Finance Companies

By establishing finance companies, buyers and suppliers can provide input credit in a more specialized way and on a larger scale. Smart cards or credit cards can be linked to point-of-sale terminals⁷⁰ to further facilitate transactions on credit. In

1987 Trisan, an agrochemical wholesaler in Costa Rica, introduced a credit card scheme (box 7) through its finance company to offer less costly credit to customers (farmers and retailers).

Agribusinesses Adopting—and Adapting—Microfinance Techniques to Improve Repayment

Just as traditional agricultural finance providers have improved repayment rates by taking lessons from microfinance, evidence suggests that agribusinesses can do the same to tackle their repayment and operational challenges (box 8). To promote client repayment, some private contract farming schemes use techniques similar to those used by microfinance institutions: group liability, close monitoring, and development of strong trust between the lender and borrower.

A variant on this approach would be for firms with microfinance expertise to perform back-office processing—that is, operating credit management systems—for agribusinesses. Such firms could also potentially strengthen the performance of agribusiness credit portfolios and facilitate their expansion. But there is little experience with such efforts, and this conjecture remains unproven.

Small Farmers Form Groups and Associations to Improve Credit Access

Small or remote farmers may have few market options and depend on a few traders offering unfavorable credit terms—or have no access at all

Box 7 Costa Rica: Financiera Trisan—A Supplier Creates a Finance Company

In 1987 Trisan, an agrochemical wholesaler in Costa Rica, formed Financiera Trisan, a finance company designed to provide faster, cheaper access to finance for farmers and retailers. To lower transaction costs and increase credit sales, Financiera Trisan developed a credit card program (first launched in 1992) for retailers of agricultural inputs and individual agricultural producers with predictable cash flows. Two types of cards were developed: Agrimax, for input retailers and farmers with regular income (30-day billing cycles), and Maxicuenta, for farmers with good credit and seasonal cash flows (allowing balloon repayments after harvest). The cards could be used at a range of rural merchants, including input stores, gasoline stations, and auto repair shops. The credit card program allowed Trisan to evolve from providing supplier credit to a wider range of financial services.

By 1999 Trisan had issued more than 3,600 cards, and the Agrimax card had US \$4.7 million in outstanding loans. But two factors have led Trisan to rethink its credit card business: a government debt pardoning scheme introduced in 1999 severely lowered repayments, and the Superintendent for Banks deemed Trisan's administrative costs and delinquency rates too high and ordered them lowered. Repayment levels plummeted after the introduction of the debt pardoning scheme, and delinquency rates rose to as high as 25 percent. (In 2004 they remained at about 15 percent.) Since 1999 more than 2,200 accounts have been written off.

The company has been shifting the Agrimax card to a smart-card system. The smart card is more flexible in terms of interest rates, loan terms, and repayment schedules, enabling Trisan to provide different models of credit (unlike the standard Visa model followed earlier), and thus better manage its lending risk. The volume of smart card-based credit rose from 9 percent in 2001 to 14 percent by September 2002, and delinquency rates on these accounts are reported to be less than one-third of those on the traditional card.

Source: Email exchange between a CGAP researcher and Charles Spalding, director of Trisan, 2002; see also Wenner, "Making Rural Finance Work," 2001; and Wenner and Quiros, "An Agricultural Credit Card Innovation: The Case of Financiera Trisan," 2000.

Box 8 Two Examples from Southern Africa: High Repayment in Agribusiness Input Credit

Cottco, Zimbabwe

Cottco, a large cotton ginner in Zimbabwe, has adopted microfinance group lending techniques to help reduce side-selling and defaults on input loans to smallholders. Cottco extends credit to farmer groups with joint liability and provides services, including extension advice. Since its inception the scheme has consistently reached more than 50,000 smallholders a season, and achieved repayment rates in excess of 98 percent.

CRM Farm, Zambia

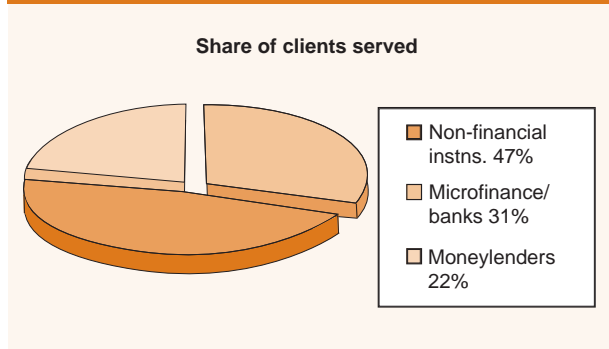
For several years, CRM Farm, a commercial farm in Zambia, has achieved repayment rates of or close to 100 percent on fertilizer credit extended to about 70 small farmers for maize production. (Maize is a widely traded food crop highly susceptible to side-selling.) By contrast, a government fertilizer credit scheme that operated during a comparable period achieved a recovery rate of just 6 percent. CRM Farm borrowers repay their loans at harvest by delivering two bags of maize for each bag of fertilizer received. Small farmers supplying CRM want to continue doing so, as it provides a reliable source of inputs. Thus, they comply with their agreements and do not sell the corresponding amount of maize to other buyers. The option of paying back inputs received on credit in the form of maize also helps poor farmers short of cash. The fact that the CRM Farm supervisor knows the farmers, and has worked with local chiefs, has also contributed to the scheme's success.

Source: Gordon and Goodland, "Production Credit for African Small-Holders," 2000; Ruotsi, "Agricultural Marketing Companies as Sources of Smallholder Credit," 2003.

to product-market credit. Such farmers can make themselves more attractive to agribusiness and financial institution credit providers by forming market-oriented groups and associations. For product-market buyers, dealing with organized groups of small farmers, rather than individual small farmers, can lower the cost and complexity

of distributing inputs, collecting crops, and keeping records. Extension services and technical assistance designed to enhance small-farmer production to meet buyer requirements (and potentially increase creditworthiness) can be provided more efficiently to a group than to individuals. A group (or association, or cooperative) can

Figure 2 Percent of Clients Served by Non-financial Institutions in El Salvador



Source: Rodríguez-Meza, cited in Buchenau and Hidalgo, "Servicios financieros privados en el área rural de América Latina: situación y perspectivas," 2002.

also help hold its members to quality and production standards. And formal associations and cooperatives allow for more effective contracts and contract enforcement, which can improve repayment rates and lower the risk of side-selling.⁷¹ Examples of farmer associations linking with agribusinesses are outlined in feature 8 below.

Feature 7 Financial Service Delivery Piggy-backs on Existing Institutional Infrastructure or Is Extended Using Technology

One of the greatest constraints facing agricultural microfinance is the dearth of formal financial institutions serving poor farming households in rural areas. In a typical case, in 1998 it was estimated that in Ghana just 8 percent of small clients—such as rural and urban poor people—had access to formal credit and savings services.⁷² Similarly, formal loans are scarce in most rural areas of the developing world, especially for poor farming households. In Latin America, for example, rural households' access to formal credit services ranges from 2 percent in Peru to 28 percent in Mexico (with Costa Rica something of an anomaly at 40 percent).⁷³ Research in El Salvador indicates that only 35 percent of the rural population accesses credit from sources other than

family and friends. Nearly half of these other sources are nonfinancial institutions such as retailers and agribusiness suppliers, processors, and buyers (figure 2).⁷⁴

Increasing the supply of agricultural finance thus requires creating institutional capacity. One way to do so is by building on existing institutional infrastructure and networks (such as post offices, agribusiness agents or collection centers, and state banks) and using technology appropriate to rural areas (such as cellular phones and mobile banking units). All rural lenders need to invest in techniques and technologies that deliver financial services sustainably in areas characterized by poor transportation and communications infrastructure, low client density (dispersion), and low levels of economic activity (which affect staff productivity and efficiency).

These challenges are greatest outside heavily populated rural regions. It should come as no surprise that the most successful rural finance programs are in South and Southeast Asia, where population densities are almost 1,000 people per square kilometer. Bank Rakyat Indonesia, with almost 3 million active clients, operates in a country where rural population density averages 700 people per square kilometer. In Bangladesh, home to the Grameen Bank and other well-known rural finance providers, the figure is even higher: almost 900 people per square kilometer. In contrast, the average rural population density in much of sub-Saharan Africa and Latin America is fewer than 10 people per square kilometer.⁷⁵

Greater client dispersion relative to urban areas, together with poor transportation and communications infrastructure, can make conventional branch structures unviable. These conditions also increase the costs of moving cash and conducting loan analysis, and make client monitoring more difficult. Responses to these challenges fall into three categories: partnering with local institutions, developing alternative delivery mechanisms, and exploiting technology.

Box 9 Georgia: Constanta—Partnering with Rural Banks to Expand Microfinance Services

Constanta, a microfinance institution in Georgia, uses temporary service centers—usually rented rooms in branches of rural banks—to lower the costs of expanding into rural areas. Constanta sends a loan officer to each service center a couple days a week to meet with client groups and supervise disbursements and repayments. Constanta pays the banks a fee for each client that uses their cashier function, and transfers funds through the banks to avoid having to transport cash. If the partner bank has a management information system (MIS) that can provide daily client data, Constanta also pays the bank a fee for each transaction that uses this teller function. If the partner bank cannot provide this service, a Constanta teller spends two days a week at the service center disbursing loans and collecting repayments, and transactions are entered directly into Constanta's MIS.

Lending began in the first service center in October 2001. By May 2002, the four functioning service centers had 1,700 active clients and US \$140,000 in outstanding loans—with minimal startup and operating costs for Constanta. The service centers have opened the door to more sustained expansion, with several locations holding potential for upgrading to permanent offices.

Other financial service providers are following Constanta's lead into these new rural markets. Service centers have low operating costs and can be viable in small towns. For example, a partner bank in the town of Khashuri charges Constanta just \$60 a month to rent a service center office, and another \$70 a month to use its systems for disbursements and repayments. If only direct costs are taken into account, service centers can be profitable with fewer than 300 active clients.

Source: Pearce, "Pro-Poor Innovation Challenge Case Study—Constanta (Georgia)," 2002.

Partnering with Local Institutions

When financial institutions establish relationships with local institutions that already have infrastructure in rural areas, it is often a win-win situation for all parties. Financial institutions can partner with other financial entities, such as rural banks, or with non-financial entities, such as clinics, schools, lottery outlets, post offices, pharmacy chains, or agricultural input suppliers. The holder of the local infrastructure can gain additional revenue as a result of financial services from the financial service provider/partner being offered through its branches and other outlets, while the financial service provider avoids the investment and operational costs associated with setting up a dedicated network (box 9).

For example, if a bank or money transfer company does not have a rural branch network, agreements with other institutions can provide access to rural remittances—say, through agreements with retail stores or links to credit union networks. Although not a formal linkage, the network of microbanks in Oaxaca, Mexico, shows the potential of informal rural financial institutions linking to town-based banks. The microbank, Xuu Nuu Ndavi (Money of the Poor People), in San Juan Mixtepec (a village with a high level of emigration

to the United States and other parts of Mexico), offers a service where it collects remittances in bulk from the branches of two banks (Banorte and Banamex) in a nearby town (Tlaxiaco).⁷⁶ This service reduces the cost and time required for clients to obtain remittances from a US \$5, six-hour round trip by bus (which also requires waiting in a queue for several more hours) to a short walk to the microbank office and a fee of just \$1.50.⁷⁷ The remittance product has increased Xuu Nuu Ndavi's liquidity, and as a result it has been able to lower the interest rates paid on client deposits. Despite the bank's small size (260 members), it is at least nominally profitable.⁷⁸ It and other microbanks in the network are also exploring the possibilities of sharing offices with remittance transfer companies and of providing them with loans to allow them to transmit larger volumes of remittances.

Similarly, the World Council of Credit Unions (WOCCU) has introduced IRNet (International Remittance Network), which is linked to money transfer companies, such as Vigo. IRNet enables remittances to be sent from credit unions in the United States to credit union networks in Central America, Mexico and Jamaica. IRNet's fees—US \$10 per transaction under \$1,000—are low

Box 10 Kenya: Equity Building Society—Delivering Mobile Banking

In 2000 Kenya's Equity Building Society introduced mobile banking in about 20 of the country's most isolated towns and villages. The mobile units visit weekly and offer a range of banking services, including loans, cash transfers, and savings accounts. The units operate as follows:

- Existing client data are downloaded onto a laptop computer, and a customized, bulletproof, all-terrain vehicle takes the laptop, cash, staff, and armed security personnel (hired from the government) to the mobile banking location.
- The vehicle uses solar power to run the laptop and management information system (MIS), as well as voice and data transmission equipment.
- The vehicle transmits data to the main branch, which can serve up to five mobile units simultaneously. These data transmissions use Global Services for Mobile (GSM) communications technology, which is reliable and safe—unlike the telephone lines that may be available in some areas. This technology enables client account information to also be updated directly to mobile units if appropriate. In addition, VHF radio communication is used to link the mobile units to branch offices.

Source: Ayee, "Equity Building Society (EBS): Agricultural Lending," 2003; Coetzee, Kabbucho, and Mnjama, "Understanding the Re-birth of Equity Building Society in Kenya," 2002; Craig and Goodwin-Groen, "Donors as Silent Partners in MFI Product Development: MicroSave-Africa and the Equity Building Society in Kenya," 2003; EBS, "Mobile Banking Experience," 2003; PlaNet Rating, "Equity Building Society (EBS)," 2001.

relative to the estimated average of 13 percent for remittances to Central and South America, which would be \$26 for the average (\$200) transaction.⁷⁹ WOCCU estimates that 10 percent of remittances sent through IRNet go into savings.⁸⁰

Cooperatives in the Dominican Republic have a more extensive rural branch network than do banks, and have taken advantage of this to expand their membership. San Jose de Matas, for example, received and distributed US \$500,000 in remittances in one year, and many of those receiving money have joined the cooperative.⁸¹ FEDECACES, a federation of credit unions in El Salvador, has an extensive rural network for poor clients, as well as a wide network of partner credit unions abroad that facilitate remittances. In 2002 FEDECACES transferred \$22 million in remittances to its clients in El Salvador.⁸²

Developing Alternative Delivery Mechanisms

Flexible alternative delivery mechanisms, such as mobile banking or renting space from other entities, can lower the costs of providing financial services in remote, sparsely populated areas. Widely used mechanisms include introducing mobile banking and renting space from other entities. In 2000, for example, Kenya's Equity Building Society instituted a mobile banking

program that enabled it to offer a range of financial services—including agricultural loans—even in remote rural areas, with full cost recovery. By early 2004, these mobile units were serving 29 locations and about 12,000 clients (box 10).⁸³

In the late 1990s, the World Bank provided support for mobile banking by a state bank as part of a large rural finance project in Vietnam. The bank used specially equipped vehicles to reach remote and mountainous areas, served more than 300,000 rural clients, and reportedly earned a profit.⁸⁴ These and other experiences point to several requirements for successful mobile banking, including robust management information systems that provide efficient loan analysis, repayment information, and arrears control, and rapid data transfer systems that provide sufficient protection against inaccuracies and fraud.

Exploiting Technology

Technological innovations can significantly increase the efficiency and lower the costs of financial service providers operating in rural areas. Thus technology has the potential to play a major role in expanding access to rural financial services. Among the most practical and increasingly affordable of these technologies are automated teller machines, smart cards, debit cards,

personal digital assistants (PDAs) and handheld computers, and cellular phones.

ATMs, smart cards, and debit cards can provide flexible payment options and more convenient access to client accounts. They can also reduce branch infrastructure and employee costs, and facilitate financial services in areas with poor communications and electricity supplies.

In Bolivia, PRODEM has extended its branch network by installing 20 ATMs. These machines have some unusual features: they are equipped with fingerprint readers for client verification, and they provide audio instructions in three languages, to make financial services more accessible to illiterate and semiliterate clients and to those who do not speak Spanish. Because the ATMs are linked to smart cards (which contain information on client accounts and previous transactions), they only have to update data from the central processing site twice a day—saving about US \$800,000 a year in internet access charges. Smart cards cost clients \$10 to obtain, and \$7 a year in operating fees. PRODEM's ATMs cost less than \$20,000 each, making their installation economical when compared to the costs of setting-up a branch office.⁸⁵

In Ecuador, a network of ATMs enables poor and rural families to access remittances sent by relatives working in Spain. Banco Solidario, an Ecuadorian bank for poor people, offers a debit card (La Chauchera) that clients can use to withdraw money deposited in Spanish savings banks, including La Caixa, Caja Madrid, and Caja Murcia, as well as Banca Sella in Italy. Clients can access remittances at more than 800 ATMs nationwide, or at any of about 100 cooperatives with whom Banco Solidario has a strategic alliance.⁸⁶

PDAs can streamline the work of loan officers and speed decision making—as long as the financial institution's loan analysis and client monitoring systems are sufficiently developed. Chile's Banco del Estado has used PDAs with great success in generating agricultural loans at the farm-

stead, based on hour-long visits. The value of fast, field-level decisions can be enhanced by incorporating credit scoring into PDA systems.

Cellular telephones also offer potential for extending financial services in developing countries, including rural areas, as cellular networks are extended. In some developing countries, the number of cellular phones already exceeds the number of bank accounts. Cellular phones can be used to check loan balances and repayment schedules, and they have the potential to be used for stored-value transactions, and to facilitate remittance transfers and payments if linked to point-of-sale devices and other payment points. Cellular networks could also be used for low-cost deposits and withdrawals if they are linked to local merchants and agents. But—and this has been a key lesson among microfinance institutions—for a technology to add value, a financial institution must first conduct careful market research and cost-benefit analysis, then ensure that its information systems can provide data in the form and at the time that the new technology requires.

Feature 8

Membership-Based Organizations Can Facilitate Rural Access to Financial Services and Be Viable in Remote Areas

Membership-based organizations have a mixed track record in managing financial services in rural areas, but they can be viable even in remote areas because they can make use of voluntary or semi-voluntary staff, draw on community knowledge when making loan assessments, use community peer pressure to ensure loan repayments, and rely on low-level institutional systems and infrastructure. Thus, such organizations, formal or informal, can expand rural access to loans, savings, and other financial products. In addition, producer (farmer) associations can lower transaction costs for credit providers—both financial institutions and product-market actors, such as processors and

exporters—because it is easier for these providers to deal with a single group rather than numerous individual, scattered farmers. And for agribusiness buyers that also provide inputs to farmers, dealing with organized groups of small farmers reduces the cost and complexity of distributing inputs, collecting crops, and keeping records.

General Savings and Loan Organizations

Community-managed village savings and credit organizations (known as CVECAs) are prevalent in parts of West Africa and can be viable even in difficult, remote areas. For example, the network of CVECAs in the Niono region of Mali has more than 9,000 active borrowers and savers and is financially sustainable, with very good reported portfolio quality. CVECAs are organized into networks that borrow from an apex bank and onlend to the individual CVECAs. Loan funds are also generated from member savings. Fee-based auditing and training from an independent support centre (“CAREC,”⁸⁷ which took over this function from the French NGO CIDR) provides necessary ongoing support functions.

The village-based nature of CVECAs results in lower operating costs. Each village determines its own interest rates and loan products, which helps ensure that loan products are suited to local agricultural activities. CVECAs also keep costs low by collaborating with village farmer associations on client appraisals, loan guarantees, and repayment schedules. CVECA members, which helps improve monitoring effectiveness.⁸⁸

Another example where members play a valuable role is the livestock insurance product offered by Nepal’s small farmer cooperatives (SFCLs). This product uses committees of members—working under the guidance of SFCL managers—to evaluate livestock for the amount to be covered by insurance.⁸⁹

Less formal group-based models also have the potential to operate viably in poor, remote areas (box 11). Techniques that reduce operating costs include relying on basic information systems, simple financial products, voluntary or semi-voluntary staff, and group knowledge about potential borrowers, as well as using the group mechanism to enforce repayment. In the absence

Box 11 Africa: CARE’s Village Savings and Loan Model—Self-Managed Groups for Rural Women

CARE’s village savings and loan model, designed primarily for women in low-density and poor rural areas, has achieved impressive outreach in several African countries since its initial development in Niger as the Matu Masa Dubara (MMD) program from 1993 onwards. In Niger more than 160,000 rural women belong to 5,500 small, self-managed savings and loan groups, each with about 30 members. Zimbabwe’s Kupfuma Ishungu program had 5,000 members in 770 mixed groups (although only about 13 percent of members are men), as of June 2002.

The CARE project helps women organize themselves, while a village agent (serving an average of 550 members in the Zimbabwe program) provides basic training on and monitoring of procedures, product designs, the role of group management committees, and other areas. Group members make weekly contributions, but can also access loans from the group savings fund. After a year or so, most groups distribute the accumulated funds equally to the members—usually when there is a particular need for funds, such as the start of a planting season. Members typically double their savings in a year through the interest income on loans (members set the interest rates, typically at 10 percent a month, with loans typically three weeks in length). Most groups rely on verbal rather than written records, but procedures are simple enough (members each contribute the same amount each week, for example) that this is not a problem.

The cost of helping to establish and support these groups is estimated at between US \$18–\$39 per member, while in Niger the average savings per member is \$12.50, and average loan sizes \$7. (The value of loans would build up over the cycle, and there could be 10 loans of \$7.) The promoters of this program (CARE International) point out that this program functions even in remote and impoverished rural areas, and that a very high percentage of the groups become sustainable. Moreover, they claim that this cost is much lower than the cost per client for more formal microfinance programs.

Sources: Hirschland, “Savings Operations for Very Small or Remote Depositors: Some Strategies,” 2003; Allen, “CARE International’s Village Savings and Loan Programmes in Africa: Microfinance for the Rural Poor that Works,” 2002.

of alternative funding sources, such as bank loans, and in response to the need for safe places for clients to store money, these organizations are often savings-based.

When these informal models are managed by members rather than professionals, savings products may have to be less liquid—for instance, fixed-term deposits. This lack of liquidity is typically compensated for by access to loans or emergency withdrawals from the savings.⁹⁰

Producer Associations

Producer associations can enable small farmers to access credit from agribusinesses and financial institutions by reducing the transaction costs of lenders that deal with them, and helping raise the quality and volume of their products to meet the standards required by buyers, as noted earlier in feature 6.

Private processors and exporters in a number of countries have recognized the potential offered by producer (farmer) associations. Since the late 1990s, outgrower associations have been widely promoted by cotton and tobacco processors and buyers in Mozambique. Lomaco, a cotton ginning company, and Mocotex, which has taken it over, have initiated hundreds of producer associations (with 20–40 members each) in the districts of Montepuez, Balama, and Namuno. CANAM is a company that buys seed cotton to process and market from about 30,000 small, medium-size, and large farms. In 2003, it provided farmers with US \$500,000 in input credit. Many of its suppliers are members of farmer associations, with whom it has formal contracts. Smallholder members have individual cards that record input credits, seed cotton sales, and other transactions. CANAM has had a positive experience with farmer associations, finding that they help in recovering credit (in 2003 nearly all had 100 percent repayment), lowering transaction costs by enabling it to buy in bulk and delivering seed

cotton to ginneries, and reducing the paperwork that would otherwise be involved in dealing with numerous small farmers. In recognition of these benefits, CANAM pays the associations commissions of 5–10 percent (though commissions are not always paid if market conditions are tight).

V&M Grain Company offers interest-free advances to traders small and large, as well as to groups of producer associations. The company reports an overall repayment rate of 98 percent. Advances to groups of associations are based on half of the crop value at an agreed price, with no other collateral arrangements, and are provided for up to 20 days. Part of each advance is used to transport the group's produce to a warehouse; the rest is distributed to individual producer associations, who further distribute it to their members. Loans average US \$5,000–10,000.⁹¹

Experiences with producer (farmer) associations have been mixed though, with some problems of lack of member motivation and association capacity. Smaller and more marginal farmers may need technical assistance and training in order to establish effective associations. The upfront costs may be more than private sector actors are willing to pay, and so may merit additional donor support through specialized intermediaries that can provide training, systems support, and other assistance to existing associations and to farmers wishing to create producer associations. Examples of support provided by one such intermediary to market-oriented farmer associations and cooperatives, the Cooperative League of the USA (CLUSA), are outlined in box 12.

In addition to increased access for small farmers to credit, less quantifiable results of this type of support to producer associations can include longer-term structural changes in farmers' access to finance, markets, and negotiating position, as well as enhanced agricultural skills, market knowledge, organizational development, literacy, and community lobbying power.

Box 12 Zambia and Mozambique: CLUSA—Support to Farmer Associations and Cooperatives

Agriflora, Zambia

Agriflora was a private Zambian exporter of flowers, fruits, and vegetables to European and Australian markets. It had annual sales of US \$30 million and provides input credit to 7,000 farmers.* Although the company ran its own farms, it also bought produce from nearby farmers small and large. CLUSA and Agriflora worked together, setting up cooperatives and providing them with technical assistance to make small farmers more attractive and competitive and to link them to Agriflora's supply and purchasing arrangements. In addition, Agriflora provided cooperatives with input credit, using the group-guarantee methodology to secure loans. After signing advance purchase contracts, farmers received monthly payments from the company for sale of their produce.** Agriflora had supply contracts with 300 smallholders in eight cooperatives in 2001.

Rural Group Enterprise Development Program, Mozambique

CLUSA launched its Rural Group Enterprise Development Program in Mozambique in the mid-1990s. CLUSA began by bringing together existing farmer associations, as well as unaffiliated farmers, to create a network of more than 800 associations in the provinces of Nampula, Niassa, and Cabo Delgado. CLUSA focused on making the associations more attractive to agribusiness buyers and financial institutions by strengthening their capacity to maintain records, coordinate production, collect produce, and provide information on quality standards required by buyers. CLUSA used decentralized staff to provide associations with onsite training, support, and consultation services. Participatory training techniques were used to teach the skills needed to run market-oriented associations, such as managing budgets and contracts. CLUSA also helped broker credit agreements for associations. By mid-2003, CLUSA was working with nearly 26,000 farmers in 860 associations (which it also calls "rural group enterprises"). CLUSA coordinated with six agribusinesses, and in 2003 two of them—Export Marketing and V&M Grain Company—provided \$136,000 in cash advances to producer associations for groundnuts, sesame seeds, and pulses. CLUSA also brokered access to finance from GAPI (a partly state-owned non-bank financial institution) for 24 groups of associations.

* Since this was written, Agriflora has run into financial difficulties that have caused it to cease operating. This does not affect the validity of including this scheme here, which was small relative to the company's operations.

**Pearce, "Buyer and Supplier Credit to Farmers: do Donors Have to Pay?" 2003.

Sources: de Vletter, "A Review of Three Successful Rural Finance Cases in Mozambique," 2003; CLUSA, "Quarterly Report, April-June 2003"; CGAP research.

The Need for Second-Tier Support Systems

Small, rural, membership-based financial entities—whether savings and loan organizations or producer associations—can suffer from weak internal controls and monitoring, and may be susceptible to deterioration in portfolio quality, capture by well-educated or influential persons, and even fraud. Some are run by or for the benefit of a few members who monopolize access to loans or provide loans to members as a "right," with loan amounts simply calculated as multiples of member savings or shares. More formal membership-based organizations, such as savings and loan cooperatives registered with a country's financial institution supervisors, are less prone to these weaknesses. Such organizations, however, have higher cost structures and are less suited to marginal rural areas.⁹²

Creating a second-tier institutional support structure for small, rural financial organizations, such as a network or federation of savings and

loan cooperatives, can address some of these challenges. Audits and benchmarking can promote transparency and performance standards. In addition, services can be offered that make it easier for member organizations to negotiate funds from banks and donors, lobby for policy and legal reforms, monitor performance, and meet short-term cash-flow needs (for example, through a refinancing facility).

Building an effective, viable structure, however, can be problematic. For example, in Mali, it took more than 10 years for an institution-building project to achieve technical and financial sustainability for the CVECA system.⁹³ In East Africa, there is a social and cultural divide between savings and loan cooperatives and their apex structures, where the apexes are perceived as serving their own interests and insufficiently responsive to the needs of their members. In Tanzania, the apex institution, SCULT (Savings and Credit Union

League of Tanzania), did not provide many services for its partner cooperatives; as a result the cooperatives began losing interest, and in early 2000 even considered canceling their subscriptions to the apex.⁹⁴

Although some cooperative federations have been ineffective and costly, there have been positive experiences—such as Brazil’s SICREDI and Cresol (box 13). SICREDI is a system of savings and loan cooperatives for small farming households. It specializes in agricultural lending, primarily for the production of rice, wheat, beef, fodder, fish, and vegetables, and for agricultural equipment. Short-term loans are financed by deposits, and longer-term loans by loans from the National Development Bank. The size of SICREDI loans depends on the potential returns from crop sales, as well as household income and debt payments, and is limited to half of production costs. Borrowers make interest payments

each month and balloon payments for the principal at harvest time.

Remaining Challenges

The human and financial resources available in small, rural communities limit management and governance capacity for developing membership-based organizations. These organizations often require more supervision, assistance, and monitoring than is initially assumed, and in the medium- to long-term (if not from the start), fees will have to be charged for these services. Where community resources and capacity are severely limited—for example, in remote communities or where economic activity is at a very low level—informal models may be more appropriate. Institutions should not be pushed to grow faster than their capacity allows.⁹⁵

An important challenge for donors, governments, and others seeking to promote membership-based

Box 13 Brazil: SICREDI and CRESOL—Providing Second-Tier Support for Groups of Cooperatives

SICREDI follows consistent, agriculture-focused lending practices, and pools and manages liquidity risk at the system level. Uniform, system-wide standards are strictly enforced. To use the SICREDI name and logo, credit unions must meet stringent financial, policy, and product quality standards. The financial details of all members are shared among the system to ensure peer enforcement of these standards. The high risks associated with narrow dependence on agricultural lending is managed by limiting the percentage of assets in such lending, financing long-term loans with borrowings from the National Development Bank, and buying crop insurance (through PROAGRO, the national crop insurance program).

Being part of a system is central to the success of SICREDI cooperatives: they can obtain refinancing, offer a wider range of services than if they were stand-alone entities, benefit from system-level management of liquidity risks, and associate with a brand that requires commitment to high standards. The SICREDI council develops policies and products, and provides training services. A cooperative bank (Bansicredi) enables members to issue credit cards, offer internet banking, issue trade credits (including letters of credit), and provide insurance (life, non-life, and rural). Members can also facilitate forward sales, notably by coffee growers, through the Cedula de Produto Rural instrument. In addition, SICREDI’s participation in the PROAGRO crop insurance program, which adds a premium of 3.9 percent to loan rates, enables its members to provide agricultural insurance.

Cresol, another network of small farmer cooperatives in Brazil (which generally serves poorer clients than does SICREDI), also provides the benefits of a second-tier support structure. Cresol has its roots in farmer organizations and movements that built community savings and loans mechanisms in agricultural communities and gradually formalized into cooperatives. These cooperatives then formed a network (Cresol) with a central cooperative (Cresol-Baser) and regional “Cresol Baser” service centers offering support services, such as audits, bookkeeping, software, and legal assistance; the centers also fulfill a monitoring role and mediate with the Central Bank. The centers serve numerous cooperatives, ensuring more cost-effective operations, and are mainly staffed by members of the cooperatives. Cresol cooperatives also have access to a central liquidity fund. The government provides subsidized credit to Cresol through BNDES (the state development bank, Banco Nacional de Desenvolvimento Econômico e Social) and the PRONAF (Programa Nacional para Agricultura Familiar) program.

Source: Branch, “Credit Union Rural Finance: Sicredi Brazil,” 2003; CGAP research (including communications with SICREDI and DGRV (German Cooperative and Raiffeisen Confederation); DGRV reports and web site, www.dgrv.org; Bittencourt, “O cooperativismo de crédito no Brasil,” 2003; and Cresol financial reports.

organizations is to strike a tricky balance between providing the crucial support needed to reduce corruption, avoid mistakes caused by poor governance and incompetent management, and limit financial failure to acceptable levels, while not infringing on the ability of small informal associations to operate viably. When membership-based organizations are overly dependent on external funding or support, it can conflict with the interests of their members and put the safety of members' deposits at risk.⁹⁶ Community-managed revolving funds that are not savings-based almost never succeed. When the initial or main source of funds is external, for instance, from a donor agency, these funds tend not to achieve repayment that is good enough to keep the fund revolving for very long.

Feature 9 **Area-Based Index Insurance Can** **Protect against the Risks of** **Agricultural Lending**

Governments have long sought to help reduce agricultural production and price risks by providing livestock or, most often, crop insurance. But these programs have tended to suffer from high administrative costs, unrealistically low premiums, moral hazard, and vulnerability to severe losses. Administrative costs are rarely less than 30 percent of the income received from premiums.⁹⁷ Moreover, insurance has usually covered multiple (or all) risks, rather than specific, quantifiable ones. In the late 1990s, a study of seven public crop insurance programs found that on average, losses (payouts) were more than twice income.⁹⁸

Moral hazard affects both insurance providers (administering public-funded schemes) and clients under such programs. Farmers are less likely to take steps to reduce losses and more likely to take more risks (such as planting crops in marginal areas), while providers are less concerned about following careful insurance practices when assessing losses

(because they assume the government will cover the losses). Fraud can also be a problem. In Mexico, for example, before the national agricultural insurance agency was closed, inspectors were found to be accepting bribes averaging 30 percent of the payouts made to farmers.⁹⁹ Given the failure of many government-sponsored schemes and their vulnerability to being undermined by political motives, the validity and potential effectiveness of state agricultural insurance programs must be seriously questioned.

A more promising approach is area-based index insurance, which can be applied to both production and price risks. Such insurance is defined at a regional level and provided against specific events that are independent of the behavior of the insured farmers. Examples include weather-related insurance policies linked to rainfalls or temperatures in a defined area, offering indemnity payments if the relevant index falls below (or rises above) a certain level, and price-related policies with payouts based on crop prices. Such policies enable providers to insure against a specific risk, rather than all agriculture-related risks, and being defined at a regional level makes them more viable and attractive to private insurers because they reduce administrative costs and risks of fraud and moral hazard.

Lenders can take out insurance policies to cover their agricultural portfolios and pass the costs of the premiums onto their farmer clients through additional fees or interest charges. Index-based hedging instruments bought on international markets can allow lenders to manage potential losses from weather or price risks, giving them greater confidence to start or expand agricultural lending. Financial institutions can buy hedging instruments that reduce their exposure to losses from default, bad weather, or delayed interest payments resulting from adverse price movements in commodities that their clients produce, trade, or process.¹⁰⁰ Hedging can be done for an overall portfolio, or a hedge can be attached to each loan.

Area-based index insurance has only recently been extended to institutions that lend to or buy from small farmers, and successful examples of it are still rare. An emerging example involves the Kilimanjaro Native Cooperative Union (KNCU), a large Tanzanian coffee cooperative of small farmers that trades about 11 percent of national coffee production. The cooperative has had some success in reducing its exposure to negative coffee price movements by buying “put” options that allow it to maintain an agreed floor purchase price with farmers during the trading season. It borrows from a domestic bank, the Cooperative and Rural Development Bank (CRDB), to pay for the hedging contract premiums (put options). Thus the cooperative has reduced its exposure to price fluctuations and falls in the value of coffee stocks held during processing or while awaiting sale. Because the cooperative has used this approach for only one season, it is too early to draw any definitive conclusions about its effectiveness.¹⁰¹

Index-based insurance has the potential to reduce both the risks of losses for individual farmers and the operational risks of lenders. A basic difficulty for insurers in extending such coverage to small farmers is the same as that faced by microfinance institutions: how to profitably service small contracts and transactions. Governments and donors can adopt or support measures that enhance the potential for index-based insurance from the private sector to include small-farmer clients. They can, for example, ensure the existence and availability of accurate, timely, and comprehensive databases—for example, on national or regional rainfall levels and commodity prices—that private insurers can use to value instruments for weather and price risks. In addition, donors can encourage brokers to enter the market (for example, by disseminating data on emerging approaches or even by providing training). Brokers can help financial service providers assess and price the risks in their agricultural portfolios and the risks of expanding agricultural

lending, as well as help them negotiate insurance and hedging arrangements.

Although brokers would ideally come from the private sector, Tanzania’s KNCU and CRDB received such assistance from the World Bank’s Commodity Risk Management Group (CRMG), which helped the cooperative develop a risk management strategy and negotiate the put options. The group also trained CRDB staff in assessing price risks and providing advice on hedging trends. The CRMG envisages this facilitating role being performed in the future by a private broker, requiring only temporary donor or government support.

Microfinance institutions that insure small farmers and assume the related risks must be very careful. When the insured event is relatively rare, all is well, and premiums can be an attractive income source. But a catastrophic event—even on a local level—may put a microfinance institution at risk of bankruptcy and non-compliance with its obligations to its insured clients. Insurance is by nature a product best built on the back of risk diversification over the largest possible group of insured clients and the broadest range of circumstances that can affect claims.

Feature 10 To Succeed, Agricultural Microfinance Must Be Insulated from Political Interference

Government and donor intervention in agricultural markets and lending, whether persistent or unpredictable, is perhaps the greatest source of risk for agricultural lenders. The provision and design of agricultural finance have largely been driven by pressures to finance farm production and raise rural living standards, rather than build sustainable infrastructure for rural finance. When government officials face a perceived choice between promoting maximum outreach of rural financial services by building sustainable

institutions; and using institutions to channel finance in direct support of technology adoption, subsistence food production, and rural infrastructure development—regardless of long-term sustainability—they usually opt for the latter, at the expense of sustainability.

Since the early 1970s, Ohio State University's Rural Finance Program and a host of other academics, evaluators, and program administrators have produced a vast literature detailing the shortcomings of this traditional approach to agricultural lending.¹⁰² At the heart of their critiques lie the propositions that governments and development agencies can serve a vital development purpose by fostering sustainable financial institutions to serve rural populations, and that these institutions do not require permanent subsidies.

At the same time, many sub-Saharan African governments have traditionally maintained low food prices that favor urban populations—an approach that has reduced returns on agriculture and lowered demand for rural financial services. In addition, governments of developed countries undermine developing country agriculture by “dumping” surplus agricultural products on developing country markets, often in the name of aid. These surplus products are cheaper than locally produced produce and risk undermining local agricultural production and lowering farmer incomes.¹⁰³ State controls on export crop prices and state intervention in processing and marketing have also distorted agricultural markets in many developing countries. In many cases, export crops have been excessively taxed.

Extensive Agricultural Subsidies

By and large, governments around the world, including those of the leading economic powers, have not yet accepted these propositions, and seem to take the view that farming families and rural communities should be supported through income transfers. Their position—reflected in

agricultural subsidies and import duties in the European Union and the United States, and in directed credit programs throughout the developing world—is that farms, particularly family farms, should be subsidized to achieve broader social goals. Domestic agricultural subsidies in developed countries are significant relative to their total aid to developing countries, let alone their aid to agriculture. US agricultural subsidies in 2003 (US \$16.4 billion) were actually larger than total US aid to developing countries (\$16.3 billion).¹⁰⁴

Poor Repayment Rates

When governments in developing countries channel income support programs through loans, discipline in credit markets suffers and agricultural finance becomes more difficult. In the 1960s and 1970s, when evaluators analyzed the weak repayment performance of credit programs targeted at small farmers, they blamed circumstances beyond the control of both borrowers and lenders. To explain the seeming inability of poor borrowers to repay loans, they blamed natural disasters, poor market infrastructure, inadequate land tenure, and other factors that increase agricultural risks. In fact, they suggested that the same factors that produced poverty were responsible for loan defaults.

During the early 1980s, evaluators blamed the intervention strategies for farmers' low repayment rates. Because farm loans were usually provided as a basic input under an integrated approach that included better seeds, farming techniques, and marketing structures (such as cooperatives), as well as land reform, the failure of any of these elements was deemed sufficient to provoke default. Similarly, delayed disbursements, inappropriate loan amounts or terms, and other problems associated with providing loans under an integrated approach were thought to contribute to default.

What these early studies did not reveal was why some farmers in an area repaid their loans while others did not, despite similar crops, yields, incomes, and risks. These analysts assumed that

because small farmers had never before obtained formal sector credit, they did not know how to use it. They believed that such borrowers “misallocated” the credit to consumption activities, such as weddings, funerals, education of their children, or even food. The literature exuded a strong moral censorship when discussing these factors even though today it is recognized that many of these activities serve a strong economic purpose for the poor by providing a financial safety net for parents in old age.¹⁰⁵

After many years, evaluators began to realize that the blame for poor repayment rates had to be laid at the doorstep of lenders and the incentives they created for borrowers to comply with loan obligations.¹⁰⁶ Although some of the aforementioned reasons undoubtedly raised risk levels in agricultural lending, the primary cause of borrower default was the political economy of credit (box 14). Governments provided cheap credit to small farmers as a way of getting votes, as well as to compensate for low farmgate prices and lack of investment in rural infrastructure. As a result governments were reluctant to enforce strict loan recovery, especially in the face of general difficulties faced by large groups of farmers.

Debt Pardoning Schemes

Loan defaults are bound to rise if farming households are automatically offered the opportunity to

defer loan repayments or in a situation where both borrowers and lenders recognize that repayments will be difficult. This situation is exacerbated if a lender has a tradition of pardoning farmer debts every few years, if such debts threaten the land tenancy of smallholders. In such scenarios, small farmers have a strong incentive to delay payments or roll over debts in the expectation that lenders will ultimately write them off.¹⁰⁷

Governments have all too often granted debt pardons to farmers in order to secure rural support prior to elections. In Costa Rica, the government debt pardon in 1999 substantially lowered repayments on credit cards offered by Financiera Trisan, a finance company set up by a wholesaler of agrochemicals (see box 7). As a result, delinquency rates on the cards rose as high as 25 percent, and more than 2,200 accounts were written off over the following two years.¹⁰⁸ Similarly, in 2001 Thailand’s state-owned Bank for Agriculture and Agricultural Cooperatives was forced to participate in a government debt suspension program for farmers who faced difficulties repaying their loans. More than 2 million farmers owing over \$1.7 billion—a third of BAAC’s portfolio—enrolled in the program. As a result, BAAC’s loan write-off rate jumped from 3 percent in 2001 to 12 percent in 2002, and its reserves for bad debt rose to 21 percent of its loan portfolio.¹⁰⁹ This indicated a growing repayment problem, with

Box 14 Zambia: Omnia Small Scale—The Unintended Effects of Government Support for Agricultural Production

Omnia Small Scale was created by Omnia, a South African fertilizer manufacturer and marketer, to extend fertilizer on credit to small farmers in Zambia. Farmers lacking cash could obtain fertilizer for an agreed amount of produce (such as three bags of maize for one bag of fertilizer). This scheme worked well until the government decided to use Omnia dealers as agents for its subsidized fertilizer credit program. The relaxed attitude toward default in the government’s program led to reduced demand for Omnia’s program.

In response, Omnia shifted to a more sophisticated credit package that included both seed and fertilizer. It focused on farmers with good repayment records under the government scheme and disbursed US \$300,000 in credit. But Omnia suffered losses with this package due to loan recovery rates of just 80 percent. In addition to crop failures in some areas, the company blamed its losses on the indebtedness caused by the government scheme (because some of its clients also took advantage of the government credit) and an expectation that non-repayment would be tolerated. Omnia no longer offers credit to smallholders, largely because of the government’s distorting presence in the fertilizer sector.

Source: Ruotsi, “Agricultural Marketing Companies as Sources of Smallholder Credit,” 2003.

additional long-term implications on BAAC's client image and capacity to enforce future repayments.

Subsidized Interest Rates

The traditional agricultural lending paradigm remains widespread and has a number of fundamental flaws—none more damaging than highly subsidized interest rates. Cheap credit triggers a vicious cycle of credit rationing that favors better off rural inhabitants able to use status and connections to siphon off the available cheap credit, deprives lenders of the budgets needed to adequately follow through on and recover loans, politicizes credit allocation and collection, and ultimately requires continued operating subsidies for lenders.¹¹⁰ This unending cycle, combined with periodic government interventions that undermine loan repayment, has convinced many analysts that agricultural lending is too risky and cannot be undertaken commercially.

High Transaction Costs

Lenders often impose high transaction costs on low-interest loans as a rationing mechanism in the face of excess demand because they are unable to adjust for this demand by raising interest rates. For example, lenders require borrowers to make several trips to the bank or other agencies to put together necessary paperwork, check on the status of the application, and meet other pre-conditions for approval. These high transaction costs reduce the value of loans for clients and make them less likely to repay, as they do not fear being disqualified for another loan the following year. When loans are relatively complex, borrowers may rightly fear that approval in the coming year might be held up for arbitrary reasons. In part, high transaction costs result from the fact that lenders do not have much revenue from which to develop a robust operational budget. Thus, low interest rates fail to provide lenders with the income they need to build the infrastructure required to offer quality financial services.¹¹¹

Directed Lending

The requirement that lending be directed to certain crops or uses has often complemented subsidized interest rates. Given the fungible nature of money and the integrated nature of income streams and expenditures in a poor household's budget, any insistence on directed lending requires high monitoring costs to be effective.

Failure of Credit to Reach Poor People

Most agricultural lending in developing countries is still subject to political interference, subsidized interest rates, directed lending, and poor services. This paradigm does not work. Local elites often capture the loans that are supposed to go to poor farmers, and default rates are unsustainably high (often well above 40 percent). These results have continued despite 30 years of experience in thousands of subsidized rural credit programs.

In 1974, for example, the largest 10 percent of rural borrowers captured 80 percent of the highly subsidized agricultural credit offered by the National Bank of Costa Rica's agricultural credit department. The smallest 50 percent obtained only 5 percent of this credit (in loans averaging US \$585), even though the program was designed to promote small farmers' access to cheap credit. These results were in line with those in all the other Costa Rican banks studied at the time.¹¹²

A decade later, the findings were similar. An Inter-American Development Bank review of directed and subsidized agricultural credit projects in Latin America pointed to the continuing negative effects that cheap credit had on resource allocation, income distribution, macroeconomic management, and financial market development. Evaluations of agricultural credit programs in Ecuador, Panama, and Peru in 1983 shared the following findings:

- Outreach was limited. Peru's Banco Agrario accounted for more than 80 percent of credit disbursed by the financial sector, but reached only 7 percent of farmers.

- Most loans went to upper-income clients.
- Interest rates were generally negative in real terms.
- Borrower transaction costs were high. In Ecuador, the total transaction costs of a borrower qualifying for and repaying a small loan were estimated to be equivalent to a 5 percent monthly interest rate.
- Portfolio quality was poor, with arrears ranging from 14 percent to 26 percent.¹¹³

Such results are not limited to Latin America. An analysis of the state-controlled Agricultural Development Bank of Pakistan (ADBP) in the mid-1990s found that the bank's social costs exceeded its social benefits by as much as 35 percent. Moreover they found that 69 percent of rural households received just 23 percent of formal sector loans of the kind provided by the ADBP (which reportedly provided the majority of formal sector lending to agriculture)—while 4 percent of households (the wealthiest) received 42 percent. Loans to politically connected borrowers also had a far higher default rate. In 1996 the ADBP's loan recovery rate was 45 percent, down from 59 percent in 1991. The authors concluded that political factors had played a large role in the bank's declining worsening loan recovery rate.¹¹⁴

An Emerging Model for Agricultural Microfinance

This paper has discussed a number of features that are found in relatively successful attempts to provide financial services to poor farmers. No program incorporates all of them, nor is there any suggestion that every program should. But each feature played a prominent role in a number of programs that had attained high repayment levels over a significant time span, and had reached profitability or were well on their way to it. Some of the features are practices that are relevant to any kind of microfinance, while others respond to the particular challenges of serving farming

households and agricultural investments. This final section suggests an emerging model for agricultural microfinance.

General Features of Successful Agricultural Microfinance

Over the past 20 years, one of the most important conclusions reached by development finance specialists is that poor families—and especially poor farming families—engage in a number of income-generating activities, have a number of financial coping strategies, and use a variety of formal and informal financial instruments to manage their affairs. Although agricultural production may be the main source of revenue, it is seldom the only source.

This revelation has allowed development finance initiatives, especially in the microcredit movement, to move away from the concept of loan repayments being tied to specific investment activities. Accordingly, the entire borrowing household is seen as an economic unit where income from different activities is mixed together to meet a wide variety of daily needs and repayment obligations. This shift has dramatically improved loan recovery rates and is probably a precondition for financial sustainability in most credit for poor people.

Successful agricultural microfinance providers have married the core principles of the microcredit movement—peer-based borrower selection and repayment enforcement, incremental lending, close follow-up on repayment, and so on—with the technical expertise required to assess the agricultural competence of potential borrowers. In this, these providers do not differ much from many of their urban counterparts operating individual lending schemes, which require that loan officers have a certain degree of familiarity with a substantial number of business activities.

Agricultural microfinance providers may modify loan terms and conditions to better accommodate the more cyclical cash flows in farming

households and the more demanding timing of credit needs for crop or livestock activities. They have been able to do so, however, without suggesting that repayments are linked solely to the outcomes of specific investment activities.

One of the hallmarks of successful microcredit is that lenders diversify their loan portfolios into a large number of discrete, unrelated economic activities. Similarly, organizations seeking to engage in or expand lending in farming areas can limit their exposure by lending to a large number of households engaged in many distinct agricultural and other economic activities.

Deposit facilities should be considered an essential component when supplying microfinance to farming households. Evidence suggests that most rural poor people would prefer to use savings accounts instead of loans for bulky investments, and in fact, for most financial service needs, given that poverty tends to enforce a conservative (in the sense of prudent) approach to financial management.

In sum, with some significant—but not particularly daunting—adjustments, a lot of agricultural production can be financed using standard microcredit principles. Supporting the steady expansion of successful microfinance institutions into rural areas will almost inevitably increase the funds available for agriculture as these institutions strive to serve the financial needs of farming households. The research conducted for this paper identified a significant number of successful efforts to adjust traditional microcredit products to the needs of agricultural borrowers, although the total loan volumes remain small and the track record brief.

Moreover, traditional agricultural finance institutions can provide financial services more sustainably by adopting good practice microfinance techniques that reduce risks and enable financial sustainability. Such techniques will promote institutional survival in a political climate where many donors and governments are unwilling to

permanently subsidize sector-targeted credit programs. By adopting the risk management strategies of microfinance institutions and loan analysis techniques that take into account the range of household economic activities and income sources, traditional lenders can increase their sustainability and the value of their services to poor families. For example, by raising their interest rates, such lenders can increase their budgets, offer higher-quality services, and improve their repayment performance.

But nowhere can agricultural microfinance prosper in the face of political interference. Even the best-designed and -executed programs find it almost impossible to maintain high repayment rates in the face of widespread debt pardoning (loan forgiveness) programs, massive provision of highly subsidized credit, and the repressive interest rates that characterize most government-sponsored approaches.

Special Features for Specific Challenges

This paper has discussed a number of approaches—linking loans to contractual farming arrangements, buying index-based insurance, making use of technology and existing institutional infrastructure in rural areas—that successful agricultural microfinance organizations (and others) have used to address specific challenges. These challenges are not common to all agricultural finance situations, so not all programs need to make use of all these features. Moreover, these features are less mature, and the experiences backing up their success are more tenuous, than those generally applicable to microfinance. Some are still experimental, but have been included here because they try to address core issues in the funding of agricultural production, and because they provoke considerable interest in the agricultural finance community.

Contractual farming arrangements have proven to be a powerful tool for managing risk and financing the production of complex crops, crops

that require a high level of standardization, or where a minimum volume of production is needed. The client information held by traders and processors that provide credit through such arrangements is also of immense potential value to rural lenders. There are a number of emerging approaches for linking with or adopting contractual arrangements, while obtaining the corollary support required to meet production requirements. But agribusiness finance does not address the constraints of long-term finance because contractual arrangements are generally made on a seasonal basis, and not for long-term investments in agricultural infrastructure.

Long-term financing of investment activities is one of the least common types of agricultural finance. Very few successful programs exist. Leasing has been tried on a limited basis, but its results should still be considered experimental. The demand for long-term finance, however, may not be as high as the literature on agricultural finance assumes. Most long-term agricultural investments are not financed primarily by loans from financial institutions, but by household savings and by funds borrowed from friends and family members. By using multiple sources to finance long-term bulky investments, poor households reduce the weighted cost of overall borrowing and diversify the risk of repayments falling due when unexpected events affect anticipated income.

Efforts are under way to piggy-back the provision of financial services for rural and farming households on existing commercial infrastructure. In addition, technology is being used to improve service access and quality through ATMs, cellular phones, PDAs and handheld computers, and smart cards. Again, most of these attempts to dramatically reduce the cost of service provision in rural areas should be considered experimental—though promising.

The same can be said of crop insurance against the general risks of agricultural lending. Although efforts are being made to develop insurance

schemes, and knowledge has been gained about what types of insurance and guarantee funds do not work, considerable research is needed before reaching a general recommendation on crop insurance for small farmers.

Nevertheless, all these specific features have shown definite potential in pilot schemes around the world in recent years. More important, they address the thornier challenges of agricultural finance: large and long-term investments, the combination of price and yield risks, the relatively high costs of operating in rural areas with low population density, and lending to clients with no credit records. These “extreme” challenges are unlikely to be addressed effectively by agricultural microfinance institutions that restrict themselves to the more general features closer to the microfinance paradigm. And if agricultural finance providers do not make significant advances in solving them, such providers will continue to be viewed as an ineffective component of the broader financial sector.

One of the main reasons that most financial institutions avoid agricultural lending—in addition to its high perceived risk—is that a history of cheap, subsidized credit and associated client expectations makes it extremely difficult to price loans at viable (that is, profitable) levels. At the same time, poor farming households may be unwilling or unable to pay the high interest rates needed to cover the inefficiencies of many small rural lenders or the high operating costs of lenders located far from urban centers. But by following the features of the emerging model presented in this paper, the costs for both lenders and borrowers should be reduced, leading to sustainable agricultural microfinance.

The question remains of whether there are certain groups of farmers, such as those with very small landholdings or those dependent on marginal low-return rainfed agriculture, for whom subsidies through agricultural finance might be justified. There is a case for initial subsidies

intended to lower the costs of the financial institution serving them—for example, through more efficient operations and better systems or procedures (rather than subsidizing interest rates). But any use of subsidies needs to be balanced against the limited budgets available to developing country governments, and the value of subsidizing a farming activity that is not producing a viable return relative to spending on hospitals, schools, roads, and other pressing needs. Put simply, a person or household should not be encouraged to go into debt for a particular crop or livestock activity that is not likely to produce a profit, or if a better return (taking into account household

risk management strategies, which may value a balanced portfolio of activities) could be gained from an alternative activity such as a microenterprise or working on someone else's farm.

Many millions of rural people would be much better served if more financial institutions applied the features of the emerging agricultural microfinance model demonstrated by the minority of relatively successful programs and set out in this paper. The authors hope that donors and governments will abandon the old paradigm as a failure, and will continue to invest in the development of the elements of this new model.



Endnotes

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- 25 Buchenau, 2003, "Innovative Products and Adaptations for Rural Finance," 2003.
- 26 Interviews with Banco del Estado management team by author (Christen), 1997–98.
- 27 See, for example, Adams and Fitchett, *Informal Finance in Low-Income Countries*, 1992.
- 28 Sebstad and Cohen, *Microfinance Risk Management and Poverty*, 2001.
- 29 See Rutherford, *The Poor and Their Money*, 2000.
- 30 BAAC is included here due to its massive scale, although its state-owned character clouds its sustainability.
- 31 The diversity referred to here relates particularly to the introduction of savings services. BAAC's lending operations are still dominated by agriculture, if less so than previously.
- 32 These data come from BAAC's *Annual Report 2002*, citing data from Thailand's National Statistics Office. Clients received credit from BAAC either directly or through cooperatives and associations. Note that BAAC's fiscal year runs from April to March. The data here are for fiscal 2002 and as of 31 March 2003, unless otherwise stated.
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- 35 The term "savings and loan cooperatives" here is used interchangeably with "credit unions."
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- 50 FAO, "Term Financing in Agriculture." Changes in institutional loan classification after 1999 obscure the more recent proportion of term loans.
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- 53 Westley, "Equipment Leasing and Lending: A Guide for Microfinance," 2003
- 54 See FAO, "Term Financing in Agriculture," 2003.
- 55 Ayee, "DFCU Leasing," 2002.
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- 63 Ibid.
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- 79 World Bank, "Workers' Remittances: An Importance and Stable Source of External Development Finance," 2003.
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