

Agriculture is the largest economic sector in most African countries and remains the best opportunity for economic growth and poverty alleviation on the continent. Yet, sadly, the sector has been in decline over the past 40 years, and poor farmers have largely remained poor. This failure is due to many factors, including collapsed agricultural development banks, corruption, inadequate infrastructure, and poor soils and seeds. It has also occurred because smallholder farmers lack access to critical information, market facilitation, and financial intermediation services.

This brief reviews the DrumNet Project and its approach to improving farmers' access to finance in Kenya. The project has found that financing small-scale farmers is challenging given the cost and risk associated with serving rural, relatively isolated clients. Lending becomes increasingly feasible, however, in a supply-chain approach in which farmers are connected to a formal network of buyers, retailers, and financiers.

The DrumNet Project

Financing farmers is a difficult proposition in Africa. African farmers tend to be geographically dispersed, resource poor, and undereducated—all traits that amplify the costs and risks involved with lending. Other characteristics related to the agricultural sector, such as unpredictable weather patterns, long crop cycles, irregular market access, and volatile or high farm input costs, make the proposition even more unappealing to financial institutions. Consequently, agricultural lending constitutes less than 1 percent of the commercial lending taking place on the continent.

The DrumNet Project has operated in Kenya since 2005 and employs proven microfinance principals and a supply-chain approach to promote agricultural lending (Figure 1). The project establishes relationships with key actors along a supply chain—a buyer, a bank, and several farm input retailers—and links them to smallholder farmers through a dedicated transaction platform and a fully integrated finance, production, delivery, and payment process. The targeted use of information and communication technologies

(ICTs) across the platform makes the process efficient, cost-effective, and practical in the African context.

The process begins when farmers (organized into farmer groups) sign a fixed-price purchase contract with an agricultural buyer. The contract allows farmers to approach a partner bank, obtain credit, and get farming inputs from a local, certified retailer. At harvest, the contracted produce is collected, graded, and sold to the buyer at designated collection points. A successful transaction triggers a cashless payment through a bank transfer. DrumNet serves as the intermediary in the flow of payment to ensure that credit is repaid before earnings reach farmers' accounts. A master contract governs the entire process, and DrumNet's information technology (IT) system monitors compliance.

The process creates an enabling environment for agricultural finance in several ways. First, banks are assured at the time of lending that farmers have a market for their produce and the means to adequately serve that market—two building blocks of a healthy revenue stream. Second, banks minimize the problem of loan diversion by offering in-kind credit to farmers for inputs and directly paying certified (and monitored) input retailers after distribution of the inputs. Finally, cashless payment through bank transfers reduces strategic default, since farmers cannot obtain revenue until their outstanding loans are fully repaid.

DrumNet has piloted its approach in Kenya's horticultural and oilseed sectors, serving more than 3,000 farmers across five provinces.

Lessons learned, challenges faced

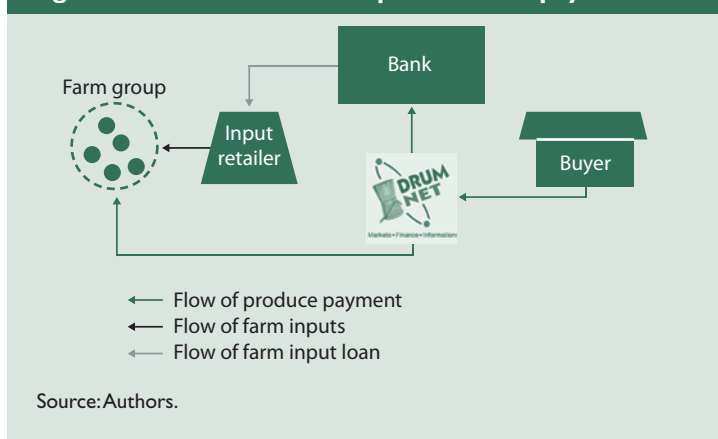
Since its start in 2005, the DrumNet Project has learned many lessons and undergone continual testing and redesign. DrumNet has found that by bundling services at various stages in the supply chain, its approach can enhance efficiency and build trust between actors in the chain. Together, that efficiency and trust help resolve many of the problems that historically discourage smallholder financing.

At the same time, DrumNet has encountered many challenges during implementation, particularly related to partner noncompliance and poor agricultural yields. In both situations, the outcome has been a substantial number of farmer loan defaults that eroded the interest of DrumNet's crop-buying partner and the goodwill of its banking partner. These remaining challenges show that the package of services must be adjusted and enhanced as the project moves forward.

Partner noncompliance

For this approach to function properly, each supply-chain partner must abide by an established set of procedures and rules. Therefore, supply-chain actors must find value in and benefit from the arrangement at all times. In theory, this is the case. Farmers get to produce goods under structured agreements and obtain inputs that help them boost farm productivity. The buyer receives greater quantities of higher-quality product with limited field mobilization. Input retailers realize increased sales without taking on the burden

Figure 1—DrumNet farm input loan and payment flow



of offering credit themselves. And the bank captures a new customer market with minimal risk, adding to its loan portfolio and deposit base.

DrumNet has, however, experienced its share of noncompliance. Farmers have opted to side-sell produce outside buyer agreements to attain quick cash or evade loan obligations. Buyers have at times failed to honor contract terms, and input retailers have engaged in dishonest practices as well. Even banks have strayed from the program by delaying payments and introducing unexpected fees to farmers.

It is crucial to resolve the issue of partner noncompliance because the benefit any one actor accrues from DrumNet depends on other partners' faithful completion of their functions in an agreed-upon manner. In other words, once one actor fails to comply because he or she does not find value in the arrangement, the overall value of the supply-chain approach is lost.

Low agricultural yields

Farmers' inability to attain sufficient crop yields has also negatively affected the project and its overall service package. In many instances, poor yields have resulted from poor weather conditions. Kenya has experienced several years of irregular and insufficient rain, especially in the eastern portion of the country. Consequently, many farmers have produced only small or extremely stunted harvests.

Soil conditions in Kenya have also diminished farmers' productivity. Because of population pressures, intensified agricultural activities, and low fertilizer use, many Kenyan farmers have exhausted their soils. With such soil conditions, even the best agronomic practices result in disappointing yields, low returns on farm investments, and consequently further soil degradation from season to season. The use of poor seed varieties has exacerbated the problem.

The way forward

To address these challenges and others, DrumNet has identified products and services that can be bundled with or added as supplements to the supply chain:

- **Performance rating.** DrumNet is devising a performance rating system that will be integrated into DrumNet processes to allow good and bad performers to be identified, thus creating an incentive for better partner behavior and commitment and distinguishing especially competent, reliable actors over time. Simple credit ratings could also serve as helpful indicators for banks as they assess potential borrowers' creditworthiness.
- **Crop insurance.** A dedicated crop insurance product that insures farmers' inputs against drought or other acts of God would reduce the weather risk inherent in agricultural financing, win further buy-in from farmers, and fill a crucial gap in this bundled, supply-chain approach. The product could

be directly tied to input sales or incorporated into production contracts. Farmers would receive not only a guaranteed produce purchase price, but also guaranteed reimbursement or replacement of inputs.

- **Soil analysis.** A soil analysis service would provide farmers with precise recommendations on how best to restore fertility to their soils and, accordingly, improve land productivity. A fertilizer matching component—matching the right fertilizers to a farmer's particular soil composition—would make the analysis even more effective. The analysis could be offered by input retailers, thereby generating greater trust between farmers, retailers, and DrumNet.
- **Payment systems.** Advances in electronic payment options should also play an important role as DrumNet moves into the future. Payment systems like M-PESA, ZAP, and MobiCash can increase the timeliness of transactions between supply-chain partners and move cash points closer to rural-based farmers. These payment solutions, together with the increasing number of bank products available in the market, will reduce the hassles farmers now incur when receiving payment.

DrumNet is now commercializing its operations through the formation of a private company in Kenya. The products and services described in this brief, along with others, are being incorporated into the new company's platform. In addition, the company plans to upgrade DrumNet's existing IT system, building a more robust and expandable system that is accessible to rural-based partners. The system will be modular in structure, so users with different requirements can select and use different components. Furthermore, the system's functionality will be matched by its simplicity—it will easily plug in to the way users already conduct business.

To mitigate risk on a larger scale, comprehensive and commonly accepted standards for communication, financing, information, and exchange must be applied across different agricultural supply chains in Africa. It is in everyone's interest to facilitate and enforce the development of these standards to ensure that all agricultural actors and initiatives operate under a single preferred paradigm. ■

For further reading: X. Giné, "DrumNet Case Study" (World Bank, Washington, DC, 2005), siteresources.worldbank.org/DEC/Resources/DrumnetCaseStudy.pdf; S. Arnquist, "In Rural Africa, a Fertile Market for Mobile Phones, *New York Times*, October 6, 2009, www.nytimes.com/2009/10/06/science/06uganda.html; *The Economist*, "Security for Shillings: Insuring Crops with a Mobile Phone," March 11, 2010, www.economist.com/business-finance/displaystory.cfm?story_id=15663856; *The Economist*, "Dial M for Money: Beating Banks at Their Own Game," June 28, 2007, www.economist.com/business-finance/displaystory.cfm?story_id=9414419.

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