

## Financial Services for Developing Small-Scale Irrigation in Sub-Saharan Africa

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Food insecurity and income poverty are rampant in Sub-Saharan Africa. Thirty-one percent of children under the age of five are malnourished and some 72 percent of the population lives on less than US\$2 day. Forty-one percent lives on less than US\$1 day.<sup>1</sup> The impoverished and hungry are concentrated disproportionately in rural areas and rely mainly on the consumption and sale of agricultural produce for their food and income. Africa has experienced increasing dependency on food imports that its countries cannot afford.

Yet an estimated 700,000 hectares of arable land in Africa remains uncultivated. It is land that could become productive through small-scale irrigation using basic technology to draw on small-water resources, such as tube wells, and *dambos*. The technologies can be applied to cultivate smallholder plots of up to five hectares. Employing them would enable up to 4 million low-income households to intensify agricultural production and increase productivity.

Access to financial services can enable smallholders to invest in irrigation technology. In Africa, however,

less than 10 percent of the population currently enjoys access to financial services and few financial products are available to finance small-scale irrigation. Broadening and deepening the variety of private sector financial services available to finance small irrigation infrastructure carries great potential to capitalize on the promise of the region's 700,000 uncultivated hectares.

Interventions that employ financial services to support the expansion of small-scale irrigation must:

- make financial institutions aware of the opportunities and market mechanisms that exist for serving small producers in their acquisition and use of small-scale irrigation;
- provide those institutions with information from baseline data and research, including market research;
- help them develop customer-friendly procedures and effective marketing;
- make smallholder farmers aware of financial services and help them to overcome financial illiteracy and mistrust of financial institutions;
- advance policies that promote competition and the financial viability of service provision;
- broaden the range of financial products available for small-scale irrigation;
- deepen the outreach and coverage of financial institutions to farmers who irrigate or who want to;
- target grant funding to the extreme poor and explicitly separate it from lending.

Establishing enabling conditions in these areas should yield a number of benefits. Raising incomes by intensifying and diversifying farm production will enable farmers to expand into the production of higher-value crops. Enabling farmers to produce high-value crops with diverse growing seasons will make cash flow between seasons more even and reduce credit risks. Making farming less vulnerable to drought will reduce agricultural production risk, reduce nutritional vulnerability, and increase nutrition and food security.





## TARGET AREAS AND POTENTIAL CLIENT GROUPS

Different financial services are appropriate in different geographic situations and among different client groups. Distinguishing between high-, medium-, and low-potential areas is essential.

Smallholder farming households and community irrigation schemes in higher potential rural areas are the principal client groups with whom financial institutions may expand lending and related services. These areas are where financial services are most likely to succeed in helping farmers to acquire small-scale irrigation infrastructure. Farmers here typically produce cash crops, hold title to their land, and have access to credit as members of marketing cooperatives. The areas are densely populated, with good transport and communications infrastructure, and typically situated within a reasonable distance from a major consumer market.

When these conditions are lacking in significant measure, financial service markets are constrained in serving individuals and communities who might benefit from small-scale irrigation. Medium potential areas are often promising settings for the development of irrigation infrastructure. However, for that promise to be fulfilled, a favorable market environment must come into being.

In low-potential areas financial services, markets, and basic infrastructure are generally lacking and persistent credit market failures coexist with extreme poverty. Water supply is insufficient and undependable. Subsistence farmers living in these areas make up a large proportion of the rural poor living on less than a dollar a day. Even here, however, there is simple, low-cost irrigation equipment that could enable them to increase their own food security and possibly move beyond subsistence farming. These farmers will generally require grant funding, at least until they can generate sufficient income to repay loans and “graduate” to more market-oriented financing. Transparent, carefully targeted and effectively guarded “ring-fenced” grant funding can be used to reach those who lack both income and collateral.

In low-potential areas where high installation costs make irrigation technologies for individual use unfeasible, capital intensive irrigation schemes may be the only viable alternative. Community irrigation schemes account for most government-supported irrigation development in Africa and are instrumental in channeling assistance to impoverished communities in lower potential areas. The water user associations that manage the schemes invest in relatively large infrastructure that is tapped

into by individual farmers. Promising financial instruments include medium-term loans, savings and current accounts, and short-term loans to pay for repairs.

Output-based aid (OBA) is a model worth considering in some low-potential areas. At the outset, a community contributes to an investment in infrastructure for small-scale irrigation, financing the remaining costs through a loan. It also commits to certain outputs, such as increased coverage of lower income farmers in remote areas of the community. When these outputs are achieved, the remaining one-half of the loan is paid off through a grant. OBA is a promising approach which has seen success in a number of instances, yet it remains to be tested in different contexts and the up-front capital that must be mobilized may prove challenging for many local communities.

## ADDRESSING CONSTRAINTS TO ESTABLISH ENABLING CONDITIONS

A variety of constraints limit the use of financial services to support small-scale irrigation in Africa. Interventions that effectively address these constraints must promote the creation of enabling conditions in the finance, water, and agriculture sectors. With these conditions in place, rural financial institutions will find new incentives to develop financial instruments designed for small-scale irrigation by smallholders. Improved credit markets can enable households and communities to bring small-scale irrigation to bear on their own poverty.

The conditions that enable the provision of financial services for smaller-scale investments in irrigation are lacking throughout much of Africa. Transport and communications infrastructure are absent or underdeveloped in many African countries. Macroeconomic policies and legal frameworks, including courts, land and property registries, contract enforcement, and legal arrangements to facilitate leasing, are often not in place. As a result, the incentives for financial institutions to support irrigation and for farmers to invest in it are lacking.

Most African countries have shallow financial systems that provide limited access to services, especially for the poor. Increasing the variety of financial products and services offered and extending their outreach to a wider array of rural clients are important priorities in many of these countries. Improving the quality and client orientation of those services and efficiently mobilizing deposits is also a priority in appealing to and stimulating demand among commercially active farmers,

entrepreneurs, and other rural clients—including those outside the traditional clientele of most rural financial institutions.

Commodity-based credit providers, such as exporters, input suppliers, and marketing cooperatives, are among the financial institutions suited to support small-scale irrigation. However these credit providers offer a very limited range of products, and financing through banks and microfinance institutions is generally preferred. Savings and credit cooperatives may be well placed to do so as well, although many lend almost exclusively to clients with long savings histories, and loan terms seldom exceed 12 months. Few commercial banks currently appear interested in engaging in the market for small-scale irrigation.

The types of financial products that can be used in supporting small-scale irrigation include short-term working capital loans, short- and medium-term investment loans, micro-leasing, and savings. Lenders who are investing in small-scale irrigation may also be interested in insurance services and financial services that combine lending with insurance may reduce transaction costs as well. These are fairly common products that are familiar to most rural finance institutions, suggesting little need for any extensive capacity building or skills development.

Financial institutions in Africa tend to have bad reputations among low-income clients. Improving their image will require greater transparency in how interest rates and fees are determined and timely processing of transactions and service requests. Easy-to-understand customer-friendly procedures and a wider range of different products with flexible repayment modes and collateral requirements will enable rural financial institutions to reach a broader clientele and to reassure low-income customers. Opening local branches and extending local delivery mechanisms will make services more readily accessible.

## LESSONS

Irrigation should not be treated as an isolated technical issue, but should be firmly anchored in water and agriculture policy and in integrated rural development plans.

For farmers who are just beginning to use small-scale irrigation and who have never before dealt with a financial institution, graduation is a useful way to build management capabilities. Graduation enables farmers to acquire lower-cost irrigation systems and gradually introduce larger units, establishing a track record with financial

intermediaries while learning to manage the risks associated with agricultural production.

Despite the ongoing international debate about individual versus group lending methodologies, it is clear that farmers engaged in small-scale irrigation need both. For low-income farmers just starting with these irrigation systems, a group scheme is most often an appropriate method because loan amounts are small and farmers may not have individual collateral. (Group lending also reduces the transaction costs of micro-lending and provides a guarantee mechanism.) Individual lending on the other hand is generally more appropriate than group lending for more farmers with more experience using small-scale irrigation, and micro-entrepreneurs with growing businesses who are investing in individual medium-cost irrigation systems.



Wholesale lending allows financial institutions to provide indirect lending for small-scale irrigation through community-based financial intermediaries, suppliers of inputs and equipment, processors, marketing cooperatives and others. Community-based financial intermediaries can use wholesale loans to on-lend to their clients. Commercial operators can use it to invest in new activities in the value chain.

The combination of financing and insurance can reduce production risk. Well-designed insurance products can substitute for traditional collateral. Leasing is often a good alternative to lending for rural finance institutions and a good alternative to borrowing for farmers. For farmers it is a way to gain access to equipment for small-scale irrigation and having the equipment itself serve as collateral. For finance institutions micro-leasing may



create opportunities to link to equipment suppliers and to buyers of agricultural produce. Equipment suppliers are interested in new marketing channels in which to promote their merchandise. The buyers see investment in productive capital like small-scale irrigation infrastructure as a way to make their supply of produce more reliable. The savings in overhead costs achieved through these relationships may offset the high transaction costs of administering and monitoring large numbers of small value contracts. Small-scale irrigation can also entail serious implications for the environment, and these must always be prudently assessed.

## COORDINATING ASSISTANCE

Technical and financial support by international development agencies needs to be carefully coordinated with national plans and according to national priorities. The support by different agencies and organizations itself needs to be coordinated and harmonized in the spirit of the Paris Declaration.

Technical support is likely to involve policy advice, supervision to ensure financial soundness and security of savings, and helping rural financial intermediaries expanding the variety of products available to support small-scale irrigation. Supporting research to develop these products will often be a prerequisite to expanding outreach of services. Because most of Africa's major river catchments extend over a number of countries, facilitating cooperation in water resources management across borders is a priority for assistance in the region.

There is a pronounced mismatch between the short-term nature of deposits and other funding sources available to rural finance institutions in Africa and the longer term

sources that are required to support the development of small-scale irrigation. Refinancing facilities that compensate for this mismatch and that buffer liquidity shortages will be an important focus of financial assistance in the region.

Financial assistance is also likely to involve providing preliminary support to rural finance institutions that extend their outreach to lower-potential areas. Both financial institutions and non-financial actors such as equipment suppliers will require support in providing end clients with term lending and leasing arrangements. Second-tier institutions that offer micro-level refinancing will sometimes need support. Local equipment manufacturing facilities will often require start-up financing. Large-scale irrigation infrastructure and additional storage capacity will likely require loan financing in order to capitalize on local hydrology.

## CONCLUSION

Small-scale irrigation can increase agricultural productivity and production, thus contributing to economic growth in rural areas and increased well-being among small holder farmers. Its potential to increase and stabilize food supply is especially important in light of the ongoing food crisis, and especially in Africa. Expanding the use of small-scale irrigation requires farmers to have access to financial services. The many constraints and obstacles that rural financial institutions in Africa confront must be purposefully navigated if financial services are to fulfill this role. Effectively tailoring financial services and products to support irrigation in different settings and among different client groups will be essential to success. Carefully targeting grant funding to the very poorest subsistence farmers and clearly separating it from lending will be likewise be critical to the sustainability of these financial services.

<sup>1</sup> 2007: World Bank Group (calculated online at <http://iresearch.worldbank.org/PovcalNet/jsp/index.jsp>).

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