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Using Market Finance to Extend Water Supply Services in Peri-Urban and Rural Kenya

This SmartLesson explains how donor funds have been used to leverage domestic market finance and equity for investment in small piped water infrastructure in the peri-urban and rural areas of Kenya. Given the immense pressure on government and donor resources to achieve the Millennium Development Goals, this approach shows that leveraging donor funds not only increases the volume of investments financed but improves the sustainability of these investments by linking debt service to system functionality.

Background

In Kenya, community-based organizations (CBOs) are important providers of water supply services in peri-urban and rural areas that are not served by publicly owned utilities. Some 1,200 small piped water systems serving 3.7 million people are operated by CBOs throughout the country. However, much of the infrastructure in these facilities is run down as a result of years of underinvestment in maintenance, with leaking distribution and storage and inadequate water sources a common feature of these systems. But the demand for rehabilitation and expansion is significant, especially as the price of alternative sources of water supplied by vendors is much higher than that sold through piped systems. Access to finance for infrastructure investment in community-run piped water systems remains a considerable constraint because government and donor resources are mostly channeled into public utilities and areas inhabited predominantly by the very poor. To address the demand for infrastructure finance, an innovative program that blends commercial debt with subsidies to finance investments in community water projects (CWPs) was initiated in the Athi Water Services Board service area of central Kenya in 2006.

Under the program, CBOs can borrow up to 80 percent of the cost of infrastructure rehabilitation and development from K-Rep Bank, a Kenyan commercial bank specializing in microfinance lending. The remaining 20 percent of the project cost is financed by

equity from the CBOs. The typical value of investments ranges from \$75,000 to \$170,000. On completion of project implementation, up to 40 percent of the total project cost is paid to the CBO as a subsidy. The subsidy is provided by the Global Partnership for Output-Based Aid (GPOBA), and the Water and Sanitation Program-Africa (WSP-Af)¹ provides technical assistance and supervises the program. The subsidy is paid against predetermined output targets set at the time of taking the loan. These targets are measured as follows:

- **Coverage:** Increase in the number of active water connections served by the project
- **Revenue:** Increase in average monthly revenue realized by the project

To cover the lender's exposure during project implementation, K-Rep Bank purchased a partial credit guarantee from USAID's Development Credit Authority that is payable if the subsidy is not awarded to the borrower. If projects do not achieve the entire output target, the subsidy is paid against the percentage to which output targets are met. The creditworthiness of the CBOs applying for loans is assessed according to K-Rep's internal risk criteria. CBOs must be formally registered as cooperatives or societies in order to borrow and must secure the legal right to sell water

¹ The Water and Sanitation Program (WSP) is a multidonor partnership administered by the World Bank to support poor people in obtaining affordable, safe, and sustainable access to water and sanitation services. For more information, visit <http://www.wsp.org>

within their demarcated area of operation, which is essential for giving the lender the necessary comfort to lend to the CBO. In Kenya, the right to supply water is granted by one of the eight regional Water Services Boards (WSBs)² that provide a CBO with a service provision agreement (SPA). The SPA is a management contract that assigns the water services operating mandate to the water services provider, giving it a monopoly over the supply of water within its area of operation. The SPA defines the operational and performance characteristics between the two parties and is subject to regulatory oversight. Since the program's inception in 2007, K-Rep Bank has lent \$1 million to 12 CBOs, 9 of which have completed implementing their projects and have received subsidies. The investments financed include water resource development and augmentation, water treatment, distribution, and meters. These investments are expected to increase the number of connections in the projects financed from 5,300 to 9,900 and target about 67,000 beneficiaries. The program is now being scaled up to target 50 projects countrywide, targeting 165,000 beneficiaries; the disbursement rate is expected to increase significantly, as the implementing agency has come some way down the project management learning curve.

Lessons Learned

1) The lender should have in-house credit appraisal skills typically used in project finance and should be prepared to lend to projects without tangible collateral, as borrowers generally do not have a financial track record or assets that support balance sheet lending.

The lender needs to blend the capacity to work with community groups with the sophisticated credit analysis and monitoring skills used in project finance. Adequate capacity is required to appraise a CWP's ability to meet its operating and finance costs from future water sales. This requires an understanding of water utility operations, cost and tariff structures, water supply capacity and constraints, and the nature of demand for paid water. The principal collateral that a borrower can offer is its cash flow from water sales that will be generated from the investments financed by the lender, and so the credit analysis must establish financial viability from this perspective. The borrower's exclusive right to supply water to customers within the project area provides collateral by way of the lender's being able to require a change in management to secure debt service payments in the event of default.

In this program, the lender built its in-house credit appraisal capacity by putting together a project appraisal team led by an experienced water engineer who works closely with the specialized project development and implementation consultants employed under the program. These activities are aimed at obtaining project-specific technical and financial data to inform the lending decision. Training and support in developing project appraisal tools and in marketing the loan product have been provided by WSP-Af, which initially identified K-Rep Bank as an implementing partner that was keen to support this innovative financing

² Under the Water Act 2002, WSBs are mandated to provide water services and ensure that consumers within their region have access to water for human consumption. WSBs do not directly engage in the provision of water supply services but license water services providers and communities to do so.



Community water point at Gitaru Water Project in Kiambu district, Kenya. Gitaru received a loan of \$60,000 to equip a new borehole and install distribution tanks in the project area. As a result, residents now have a constant water supply and the project has been able to expand the number of connections it supplies by 20%.

concept. A key factor in K-Rep's decision to implement the program is the fact that CBOs are an important part of the bank's customer base.

2) The willingness and ability to pay for water must be evident among the consumers being served by the CBO; it drives the cash flows needed to repay the loan.

While the program targets communities that are relatively poor, consumers in projects borrowing under the program pay an average monthly water bill of \$10 to \$25, depending on system operating and debt service costs. A CWP must also have sufficient scale to generate the necessary revenue to meet costs; a typical project financed under the program has between 350 and 600 individual connections, and tariffs vary from \$0.50 to \$1 per cubic meter. Poorer residents who cannot afford individual connections benefit by being able to purchase water from point water sources installed by these projects at lower rates than those prevailing in the area prior to the project.

Kiamumbi Water Project serves as a good example of a typical project financed under the program. The project draws water from a dam built by a farmers' cooperative society in the 1970s for irrigation. As farmers switched to more intensive dairy farming and subdivided the land for residential use, there was less demand for irrigation water. On the other hand, growing population pressure increased the demand for water for domestic consumption and introduced the idea of using the dam to supply households with water. At the time, residents obtained water for domestic and livestock use from vendors and shallow wells. The community borrowed \$135,000 from K-Rep Bank to finance a system that would supply potable water to 750 households. The project was completed in August 2009, and the community contracted with a private operator to run its system on a five-year management contract. The project generates monthly revenues of \$7,500 from the sale of 9,000 cubic meters of water to 450 individual connections

and a water kiosk at an average tariff of \$0.81 per cubic meter. The CBO makes timely debt service payments of \$1,750 to K-Rep Bank every month, after having received a subsidy of \$80,000 that went toward reducing its outstanding debt at the end of the construction phase.

Hence, in appraising the financial viability of a project, the lender must be able to establish that consumers in the project area can afford to pay monthly water bills and that demand for water from the project area is not eroded by competing sources of water supply. CWP's financed under the program must be able to generate enough cash from water sales to cover operating costs and complete their debt service payments within the maximum loan repayment period of five years.

3) It is critical to have a pool of capable companies providing business development services to support CBOs financed under the program; projects should be pooled to enhance their attractiveness to a specialized operator; and qualified operators should be encouraged to undertake design-build-operate contracts.

Experience from the pilot project suggests that communities lack the skills and experience needed to implement and manage water projects efficiently. To build a pipeline of viable projects that could be financed by K-Rep, the Public-Private Infrastructure Advisory Facility³ provided a grant to fund the development of bankable loan applications to be appraised by the lender, while WSP-Af provided technical assistance to improve the quality of loan applications. The loan applications are developed by consultants that are tasked with implementing and managing the projects for the term of the loan in order to pass the risk from the communities to private-sector companies specialized in the development and management of water supply systems. These companies can provide much-needed expertise during a period when most projects will experience significant cash stress on account of debt service payments. The program has short-listed three companies to provide support to CWP's under the program, and various training activities have been undertaken to build the capacity of these firms. The lender oversees procurement of consulting and management services and is a counterparty to the contracts signed between companies providing support and the CBOs, as the communities require support in contract management.

Individual CWP's financed under the pilot do not appear to generate sufficient free cash, after they have paid for direct operating expenses and debt service, to be able to contract with a private operator to manage their systems in the loan repayment phase. Under existing operator contracts, there have also been problems with meeting the operator fee because control of the cash from water sales rests with the CBO. To improve the financial viability of CWP's, the projects should be clustered and specialized operators assigned to design, build, and then operate the systems on concession-type contracts for the duration of the construction and loan repayment period. To bring economies of scale and scope to individual CWP's, each operator needs to manage a number

of projects in geographical proximity, while ensuring that there are enough operators in the program to promote competition. This also provides the necessary motivation for an operator to invest resources into making the construction and management of small piped water systems a viable business. A design-build-operate contract inherently contains an incentive for an operator to ensure that the systems built are functional for the term of the five-year loan, thereby improving their sustainability. Given that transferring risk from the CBO to the specialized operator will reduce risk to the lender, the program may also want to consider financing the operator rather than the CBO.

4) Disbursing subsidy funds on a *pari passu* basis with commercial debt results in significant cost savings; paying the subsidy on project completion increases overall project costs significantly.

Under the current program structure, disbursing subsidy funds at the end of the construction phase increases total project cost by 12 to 18 percent because of interest costs, and it increases the risk of default if construction cannot be completed within one year. While the objective of the output-based subsidy is to ensure that specific project objectives are met before subsidies are paid, the lender's rigorous disbursement processes bring a level of oversight not typically found in government- or donor-funded projects. This oversight ensures that loan disbursements are directly linked to achieving project objectives and could therefore act as output targets under the output-based subsidy approach to reduce project costs and the risk of default. This would provide additional comfort to the lender and remove the need for the lender to have a credit guarantee to cover construction risk, thereby further reducing finance costs. Programs considering a similar approach should therefore consider structuring outputs to mitigate risk to the lender and reduce project costs.



Storage and distribution tanks at Karaweti Water Project in Githunguri division of Kiambu district. The community borrowed \$50,000 from K-Rep Bank to develop a new source and install meters for all its customers. As a result, revenue collection increased by 90% and the reliability of water services increased tremendously, with 87 percent of customers receiving water seven days a week, up from 8 percent before the investment.

³ The [Public-Private Infrastructure Advisory Facility](#) (PPIAF) was created in 1999 to act as a catalyst to increase private sector participation in emerging markets. It provides technical assistance to governments to support the creation of a sound enabling environment for private service provision.

Conclusion

The program has shown that subsidies can be leveraged by two and a half times to secure cofinancing from the private microfinance sector in order to expand water supply infrastructure in peri-urban and rural areas. The operational life of systems financed under this approach is likely to be significantly greater than that of systems financed with government or donor grants because, in securing its interest, the commercial bank provides a level of oversight to management that is not typically found in projects financed with grants and soft loans.

Programs targeting similar approaches should scope the market to ensure that there is a sufficient pipeline of financially viable and technically feasible projects to warrant the establishment of a leveraging mechanism, and that the legal framework offers the necessary protection to secure the interest of commercial lenders. Further consideration needs to be given to institutionalizing the support mechanisms needed to develop the project pipeline, especially if the program is to achieve sufficient scale.

Critically, funds for technical assistance, grants, and infrastructure subsidies under this program have been provided by World Bank Group organizations. If government grants are to be leveraged in a similar fashion, it is



Public distribution point at Karanje water project. Water purchased by vendors at such distribution points is ferried to households by carts that are pulled by donkeys. As a result of the project, the retail price of water distributed in this manner has reduced from as much as \$7.50 a cubic meter in times of shortage to \$2.00. Sales made at public points generate cash income that help the projects cover operating and debt service costs.

crucial that an institutional framework that supports the development of a pipeline of financially viable projects be established to facilitate private-sector bank lending to water projects. Any such framework must recognize the fact that a commercial bank will conduct an internal credit risk assessment of every project it intends to finance.

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