

NOVEMBER 2007

Using Microfinance to Expand Access to Energy Services:

The Emerging Experiences in East Africa of Faulu Kenya and Kenya Union of Savings and Credit Cooperatives (KUSCCO)



by John Kabutha, May Sengendo,
Jacob Winiecki, and Ellen Morris

Citi Foundation



Copyright © 2007 The SEEP Network

Sections of this publication may be copied or adapted to meet local needs without permission from The SEEP Network, provided the parts are copied and distributed for free or at cost—not for profit. Please credit The SEEP Network, “Using Micro-finance to Expand Access to Energy Services: The Emerging Experiences in East Africa of Faulu Kenya and Kenya Union of Savings and Credit Cooperatives” and The SEEP Network for those sections excerpted.

For any commercial reproduction, please obtain permission from
The SEEP Network,
1825 Connecticut Avenue, NW, Washington, DC 20009-5721

Tel.: 1-202-884-8581; Fax: 1-202-884-8479

Email: seep@seepnetwork.org Web: www.seepnetwork.org

This paper is made possible by the generous support of the Citi Foundation and by the American people through the United States Agency for International Development (USAID). The contents are the responsibility of The SEEP Network and Sustainable Energy Solutions and do not necessarily reflect the views of the Citi Foundation, USAID, or the United States Government.

TABLE OF CONTENTS

Acknowledgments	5
Authors	6
Abbreviations	8
EXECUTIVE SUMMARY	9
Chapter 1. INTRODUCTION AND METHODOLOGY FOR PROJECT	15
1.1 BACKGROUND	15
1.2 METHODOLOGY	15
1.2.1 MFI Selection Process	15
1.2.2 Work Plan Summary	16
1.2.3 Field Visits	16
1.3 DATA ANALYSIS	18
1.3.1 MFIs	18
1.3.2 Energy and Microfinance Stakeholders	18
Chapter 2. KENYA COUNTRY CONTEXT	19
2.1 SOCIO-ECONOMIC ENVIRONMENT	19
2.1.1 Banking Sector Overview and Financial Service Suppliers	19
2.1.2 Financial Sector Regulation	20
2.1.3 Microfinance Sector Regulation	21
2.2 ENERGY SCENARIO OVERVIEW	21
2.2.1 Energy Resources	21
2.2.2 Cooking Fuels	21
2.2.3 Electrification	23
Chapter 3. FAULU KENYA	25
3.1 ORGANIZATIONAL PROFILE OF FAULU KENYA	25
3.1.1 Structure and Operation	25
3.1.2 Funding Sources	26
3.2 ENERGY LOAN PORTFOLIO OF FAULU KENYA	26
3.2.1 Loan Products and Characteristics	26
3.2.2 Energy Loan Clients	27
3.2.3 Financial Analysis	27
3.2.4 Model and Methodology	38
3.3 DISCUSSION	30
3.3.1 Strengths of the Faulu Kenya Energy-Lending Model	30
3.3.2 Obstacles and Barriers	30
3.3.3 Key Lessons Learned and Opportunities for Scale-Up	31
Chapter 4. KENYA UNION OF SAVINGS AND CREDIT COOPERATIVES	33
4.1 ORGANIZATIONAL PROFILE OF KUSCCO	33
4.1.1 Structure and Operation	33
4.1.2 Funding Sources	33

4.2	ENERGY LOAN PORTFOLIO OF KUSCCO	34
4.2.1	Loan Products and Characteristics	34
4.2.2	Financial Analysis	35
4.2.3	Model and Methodology	36
4.2.4	External Support for KUSCCO Energy Lending	36
4.3	DISCUSSION	38
4.3.1	Strengths of KUSCCO Energy-Lending Model	38
4.3.2	Obstacles and Barriers	40
4.3.3	Key Lessons Learned and Opportunities for Scale-Up	40
Chapter 5.	CONCLUSION AND RECOMMENDATIONS	43
5.1	SUMMARY OF FINDINGS ON FAULU KENYA AND KUSCCO	43
5.1.1	Origin and Establishment of Energy Lending	43
5.1.2	Energy Loan Products	43
5.1.3	Loan Methodology and Characteristics	45
5.1.4	MFI Investment in Energy	46
5.1.5	Relations with Energy Suppliers	46
5.1.6	Management and Financial Capacity	47
5.2	LESSONS LEARNED	47
5.3	OBSTACLES AND EXTERNAL BARRIERS	48
5.4	OPPORTUNITIES	51
5.5	RECOMMENDATIONS FOR REGIONAL REPLICATION AND SCALE-UP OF ENERGY LENDING	52
	Bibliography	55
	List of Tables	
Table 2.1	Comparative Energy Consumption in 2000 and 2001	20
Table 2.2	Funding from Formal and Informal Financial Institutions	20
Table 2.3	Energy Indicators in East Africa	21
Table 2.4	Energy Resources in Kenya	22
Table 3.1	Faulu Kenya's Energy Products	26
Table 3.2	Faulu Kenya Energy Loans by Type (June–December 2006)	27
Table 3.4	Comparing Energy Portfolio with Total Loan Advances in 2004 and 2005	28
Table 3.5	Comparative Loan Products (June 2006)	28
Table 4.1	KUSCCO Energy Products	35
Table 4.2	Summary of Units Sold and Dollar Values (June 2005)	35
Table 4.3	KUSCCO Energy Lending Income (Business Development and Marketing Department)	36
Table 4.4	Projected Scale-Up of KUSCCO Energy Products (November 2006)	37
Table 5.1	Comparison of the Faulu Kenya and KUSCCO Energy Loans	44
Table 5.2	Differences between the KUSCCO and Faulu Kenya Energy Models and Methodologies	45
	List of Figures	
Figure 3.1	Faulu Kenya Basic Energy Loan Delivery Model	29
Figure 4.1	KUSCCO Basic Energy Loan Delivery Model	37
Figure 4.2	KUSCCO PVMTI Solar Loan Delivery Model	39
	List of Boxes	
Box 1.1	Typical Data Collected During Field Research	17
Box 5.1	Comparison of Fixed Rate Interest and Declining Balance Interest	46

ACKNOWLEDGMENTS

The SEEP Network, Sustainable Energy Solutions, and the research teams that carried out this research would like to express their profound respect and appreciation for the microfinance institutions and energy companies and individuals that participated in the research in Africa:

Faulu Kenya, George Maina

Solomon Osundwa (Kenol Kobil)

Joseph Muthoka (Chloride Exide)

Kenya Union of Savings and Credit Cooperatives, Stanley Okati and Eglyne Chepchirchir

John Maina (Sustainable Community Development, SCODE)

Ashington Ngigi (IT Power)

Charles Kirubi (University of California, Berkeley)

These organizations and individuals generously shared their time with us, demonstrating commitment, creativity, insight, and patience through the entire research process, especially the field research. They also demonstrated a keen desire to further industry knowledge and practice by sharing their experiences, successes, and missteps in using microfinance to provide access to energy.

We are grateful to the funders of this research, the Citi Foundation and the U.S. Agency for International Development (USAID), for their support for this research and their willingness to advocate for the potential of using microfinance to expand access to energy services in the broader microfinance and energy services communities. In this regard, we are particularly thankful to Leslie Meek of the Citi Foundation and Patricia Flanagan and Simone Lawaetz of USAID.

This research benefited from an advisory group, comprised of individuals from the energy and microfinance sectors, who provided voluntary technical advice and guidance at key junctures. We are especially grateful to Nicola Armacost (Women's World Banking), Harish Hande (SELCO), Jennifer Hansel (Research Triangle Institute), Phil LaRocco (E+Co), Camilla Seth (Sustainable Finance Limited), Evelyn Stark (Consultative Group to Assist the Poor), and Erik Wurster (E+Co), who generously shared their time with us, demonstrating commitment, creativity, and insight through the course of this work. We would like to thank Amy Feldman from Citi Foundation for supporting the planning of the August 2007 workshop where this paper was presented and Ida Dokk Smith from SEEP for assisting with the project.

AUTHORS

John Ngure Kabutha is an independent consultant in the fields of microfinance and enterprise development. He has over twenty years' experience in rural development, policy analysis, program design and appraisals, program management, monitoring and evaluation. He has since 2004 been involved as a microfinance advisor to the Government of Namibia in an assignment by the Commonwealth Secretariat. This has involved the design and technical backstopping of a national youth credit scheme. He has worked closely with the Commonwealth Youth Program (Africa Center) on youth empowerment through enterprise development. He has made evaluations and designed programs and training for youth enterprise development, and undertaken evaluations, program design and training in the areas of youth enterprise development, microfinance (product reviews and development) and training. He is certified as a Senior Service Provider by MicroSave Africa, an international action research program specializing in financial services for the poor. He has undertaken professional assignments in all three countries of East Africa (Kenya, Uganda, and Tanzania), Southern Africa (Botswana, Malawi, and Namibia), as well as the United Kingdom. He has previously worked as an economist with the Kenya Government, a program officer with United Nations Development Programme, and a Chief Executive of an NGO involved in provision of business development services and wholesale finance to grassroots microfinance institutions in Kenya. He holds a Masters degree in economics from York University, Ontario, Canada.

May Sengendo is an institutional and policy planner who works on energy planning and implementation, sustainable household and income-generating energy for poor people, and use of microfinance to increase energy access. She has provided technical support to the Uganda Photovoltaic Pilot Project for Rural Electrification (Ministry of Energy and Mineral Development), looking at best practices for livelihood and gender-focused energy financing through village banks. As a contractor, she has worked on energy policy, program planning, and monitoring in Uganda, Mauritius, Kenya, Eritrea, Ethiopia, Ghana, Botswana, Rwanda, Senegal, and Somaliland, and for various institutions in the United Kingdom, the Netherlands, and the United States. She was a technical consultant for an EU-, SIDA-, and DGIS-funded energy policy planning exercise with a gender perspective to reduce indoor air pollution in Botswana, Kenya, and Senegal. She was a member of an ESMAP/World Bank team assessing energy sector reforms in Africa, their impact on poor people, and the implications of public-private partnerships in electricity generation, transmission, distribution. She also has worked in southern and eastern Africa with Sparknet's multi-stakeholder partnership (www.sparknet.org). She is based in Uganda where she works as a lecturer and senior gender trainer with the Department of Women and Gender Studies at Makerere University in Kampala. She is the regional chairperson for the East African Energy Technology Development Network (EAETDN).

Jacob Winiacki is a consultant with Sustainable Energy Solutions (SES) providing program design and management, research, technical backstopping, and policy support services to projects focused on energy as a means for poverty reduction. He has field experience in Kenya, Tanzania, and Uganda working on energy access projects with clients for the United Nations Development Programme, European Union Energy Initiative, Millennium Villages Project, and several East African microfinance institutions. Prior to joining SES, he managed environmental projects for a wide range of clients, including Natural Resources Defense Council (NRDC), United Nations Global Compact Office, National Aeronautics and Space Administration (NASA), and the Earth Institute at Columbia University. Jacob graduated from Columbia University's School of International and Public Affairs in 2005 with a master's degree in public administration in environmental science and policy and holds a B.S. in financial accounting from George Mason University.

Ellen Morris started her consulting firm, Sustainable Energy Solutions in 1996, where she is engaged in international development, policy analysis, and research on energy issues for national governments, development agencies, foundations, and the private sector. Dr. Morris has been a senior consultant for the United Nations Development Programme in the sustainable energy program for the last ten years. Her work at UNDP has focused on technical and programmatic support for countries seeking to advance energy as a means for poverty reduction. Most recently, Dr. Morris has done pioneering work on consumer lending and microfinance to expand access to energy services by engaging with the private sector and microfinance institutions in developing countries. She is also an adjunct professor at Columbia University's School of International and Public Affairs, where she teaches energy and development courses. Prior to starting her own firm, Dr. Morris worked for the National Renewable Energy Laboratory, in the international and geothermal groups. In the early part of her career, she worked as a Science Advisor for the U. S. Congress and as an exploration geophysicist for Texaco. Dr. Morris has a Bachelor of Science degree in Geophysical Engineering from the Colorado School of Mines and a doctoral degree in Marine Geophysics from the University of Rhode Island.

ABBREVIATIONS

FHI	Food for the Hungry International
GEF	Global Environment Facility
IFC	International Finance Corporation
IT	information technology
kWh	kilowatt hours
KSH	Kenya shilling
KUSCCO	Kenya Union of Savings and Credit Cooperatives
LPG	liquefied petroleum gas
MFI	microfinance institution
MIS	management information system
MW	megawatts
NGO	non-governmental organizations
PAR	portfolio at risk
PRSP	Poverty Reduction Strategy Paper
PVMTI	Photovoltaic Market Transformation Initiative
ROSCAs	rotating savings and credit associations
SACCOs	savings and credit cooperatives
SCODE	Sustainable Community Development
SHG	self-help groups
SME	small and medium enterprises
TOE	tons of oil equivalent
Tsh	Tanzania shilling
Ush	Uganda shilling

EXECUTIVE SUMMARY

BACKGROUND

There is no question that microfinance and consumer lending can improve access to quality modern energy services for poor consumers. Such loans help offset the high upfront cost associated with cleaner technologies, such as biogas, micro hydro power, wind, solar, or liquefied petroleum gas (LPG). To date, an overwhelming majority of financial support for rural energy applications has been publicly funded. Although these programs are beneficial, increased access to loans for consumers is essential to engage the private sector, improve the investment climate for rural energy services, and leverage the outreach and impact. A deeper understanding of the business opportunities for small-scale lending for energy services, as well as the most effective way microfinance institutions (MFIs) can respond to these opportunities, will facilitate access to appropriate financial services.

The potential for MFIs to offer profitable loans for the purchase of energy services has not yet been realized because both the energy and microfinance fields lack experience and there are few documented successes to learn from. In order to better understand the current experience with energy lending in this emerging arena, the United States Agency for International Development (USAID) and the Citi Foundation are funding a comprehensive study on the opportunities, barriers, costs, and impacts associated with MFI lending portfolios that have integrated energy into their products. The approach is to learn from detailed profiles of the business models, the clients, and the operations of selected MFIs that currently have energy lending programs.

This action research project, *Using Microfinance to Expand Access to Energy Services*, looks at energy lending offered by a select number of MFIs on three continents—Asia, Africa, and Latin America. The objective is to document the opportunities, challenges, costs, and effects of integrating energy products into a MFI's product mix, develop feedback for future expansions of these energy-lending products, and share the lessons learned with the industry at large. This study in the East Africa region examines in depth the energy lending of Faulu Kenya and KUSCCO, two MFIs with different approaches to offering loans to their clients for energy services and products, through field work and a desk/literature review. The field research included interviews with selected staff of the MFIs, energy suppliers, clients, and other energy stakeholders, and analysis of the MFIs' lending programs and financial and accounting reports.

The research highlights the competitive edge that gives each MFI a unique position, a wide array of best practices and lessons learned that can benefit other MFIs, and schemes and mechanisms that worked well in their respective environments. The country context of each MFI in the study has significant influence on the implementation and the market potential of energy lending by MFIs.

Strategic partnerships between MFIs and energy companies can play a major role in making modern energy services affordable and available to low-income people in Africa. Contrary to popular belief, expenditures among the poor in sub-Saharan Africa on inefficient and low quality energy services are surprisingly high. The poor in East Africa spend proportionately more on energy needs than the rich, and generally lack access to efficient, affordable, and clean modern energy, such as solar, micro hydro, or liquefied petroleum gas (LPG). Some estimates suggest that East Africans spend an average of one-third of the household's already low monthly budget on poor quality energy services. Improving access to modern energy services can therefore help increase incomes among East Africans by improving productivity, creating employment, and providing access to markets. However, the high upfront costs associated with modern energy continue to be a major obstacle that prevents most of the region's population from taking advantage of cleaner and

more efficient technologies. Experiences in South Asia, Latin America, and other parts of Africa suggest that appropriately designed loans, mainly from MFIs, can improve poor people's ability to afford, and take advantage of, the many benefits of modern energy services.

MICROFINANCE AND ENERGY IN KENYA

The microfinance sector in Africa is as diverse as the region itself, with a wide range of institutional and service delivery models addressing the complex and interconnected political, economic, and cultural systems impacting poverty. As compared to Asia and Latin America and the Caribbean, most of the Africa region (aside from north and south Africa) has experienced relatively slow economic growth and declining levels of individual savings over the last two decades.¹ These differences largely shape the operations of MFIs and savings associations in the region, and compelled a stronger focus on poverty reduction and promotion of savings than in other regions. In East Africa, and Kenya in particular, microfinance largely developed as a downscaling of commercial bank operations and government credit programs in the 1980s.

The majority of Kenya's population currently lacks access to modern energy services, which severely limits the potential for economic and social development. At present, less than 15 percent of Kenya's total population has access to electricity, and in rural areas less than 5 percent are connected to the grid. Most Kenyan households depend on traditional biomass resources including fuelwood and charcoal for cooking and kerosene for lighting. Despite recent promotion of LPG, fuelwood, crop/animal residue, and charcoal continue to dominate Kenya's household energy mix, representing approximately 80 percent of the cooking and heating fuel for urban areas. In rural areas, traditional biomass resources tend to be the only option, accounting for 95 percent of the rural household energy mix.² In addition to contributing to widespread loss of forests, reliance on inefficient traditional biomass sources has detrimental impacts on health, gender roles, and income poverty in Kenya. Lack of clean, affordable, and efficient energy services in the rural areas also contributes to growing rural-to-urban migration.

Access to modern energy services can increase income by improving productivity, providing access to markets, adding value to agricultural crops, and creating employment. For example, access to a solar lantern can extend business hours into the evening and draw attention to a food vendor's kiosk. For households, switching from a three-stone fire to an LPG burner for cooking can save time, improve health, and reduce household energy expenditures. However, many low-income households and microenterprises in Kenya cannot afford the upfront costs associated with modern energy. The experiences of Faulu Kenya and KUSCCO demonstrate that appropriately designed loans from MFIs and strategic partnerships with energy companies can make modern energy services affordable to large segments of the Kenyan population.

ENERGY LOAN PRODUCTS OF FAULU KENYA AND KUSCCO

The energy lending programs of both MFIs were instigated in response to repeated requests from clients for loans to purchase LPG burners and accessories. In the case of Faulu Kenya, energy loan products were initially developed to quash use of Faulu business loans to purchase household energy services by its clients. For KUSCCO, the energy lending program was a new way to serve the energy financing needs of the member savings and credit cooperatives (SACCOs).

Clients of both KUSCCO and Faulu Kenya have taken advantage of different financing options to purchase energy technologies, such as solar, LPG, and biogas through a relatively small number of energy companies currently active in Kenya. Faulu Kenya issues loans for energy services to both groups and individuals. Energy products procured by

1. United Nations, Economic and Social Development, "Microfinance in Africa: Combining the Best Practices of Traditional and Modern Microfinance Approaches towards Poverty Eradication," (New York: United Nations Economic and Social Development, 2002).
2. East African Community (EAC) Secretariat, "East African Community Development Strategy: 2006–2010," (Arusha, Tanzania: EAC, 2006).

KUSCCO are disbursed to individual SACCOs via varying lending methodologies, although most favor group-lending methodology. KUSCCO purchases the energy products in bulk from the supplier and passes on the lower prices to their clients.

Both KUSCCO and Faulu Kenya have experienced institutional growth and some measurable impact on their clients' well being when they added energy lending. However, the extent to which energy loans address poverty reduction and empower the poor is not yet visible, largely due to energy supply-chain constraints and a lack of focus on the part of the MFI. At present, energy lending in both MFIs is seen as a means to meet household needs of existing consumers or as a way to prevent the diversion of business loans to the purchase of energy equipment. They are ignoring the many ways in which modern energy can improve income-generating activities and address many dimensions of poverty.

ENERGY LOAN TERMS

KUSCCO offers energy loans on a declining balance basis, whereas most other Kenyan MFIs (including Faulu Kenya) offer fixed-rate loans. With a fixed-interest loan, neither the interest rate nor the repayment amount fluctuates during the period of the loan, allowing the borrower to accurately predict payments. A reduced or declining-balance interest rate loan is one in which interest is computed only on that portion of the principal still owed. Since a KUSCCO borrower only pays interest on the amount of original principal that has not yet been repaid, the interest paid will be smaller as more payments are made. In fact, energy clients of Faulu may end up paying more total interest over the course of the loan compared to a client of KUSCCO.

MFI INVESTMENT IN ENERGY

Both Faulu and KUSCCO were able to successfully establish energy-lending on a small scale using internal funding mechanisms. In the case of KUSCCO, internal funds including the central finance facility—a fund managed by KUSCCO offering wholesale loans to member SACCOs—were used to kick-start the energy lending program. These initial funds will be followed by external grant and technical assistance support from the Photovoltaic Market Transformation Initiative (PVMTI) and funding from Shell Foundation to further strengthen and scale up energy lending operations of KUSCCO. For Faulu Kenya, energy lending was established using its own resources obtained by listing a US\$ 7 million bond on the Nairobi stock exchange in 2005. At the time of this study, Faulu Kenya was not a registered deposit-taking institution, which may hinder the amount of resources the MFI can dedicate to addressing the barriers to scaling up energy lending activities unless external support is mobilized.

MFI PARTNERSHIPS WITH ENERGY COMPANIES

Faulu Kenya and KUSCCO sought out and engaged a range of energy partners to provide affordable and appropriate energy technologies. Both MFIs clearly recognized that successful provision of microfinance for modern energy technologies requires serious commitment from both the MFI and energy companies. This means that energy lending, as with any loan products, requires the full support of management at all levels. Otherwise, it runs the risk of being sidelined when the champion is no longer at the MFI. Secondly, before pilot-testing any energy-lending operations, all stakeholders should agree upon a set of criteria that clearly defines the model of service delivery from initial marketing and promotion to possible loan default and after-warranty service. Faulu and KUSCCO both sign memoranda of understanding (MOUs) with energy companies before entering into a partnership.

Energy companies consider the main challenges to be client misuse of equipment and management of buy-back in cases of loan defaults, which usually are rare. In some instances, energy companies have registered losses due to high costs incurred during the warranty period when maintenance and repair were provided to clients who damaged and/or abused the equipment. Additionally, some energy companies showed losses due to difficulty in repairing and selling repossessed products after loan default. As a result, many energy companies began offering more in-depth user

training and stipulating to the MFI that the energy equipment must be in good working condition should they have to buy back the equipment.

RECOMMENDATIONS FOR REGIONAL REPLICATION AND SCALE-UP OF ENERGY LENDING

There are several ways to advance expansion of Faulu Kenya and KUSCCO's energy lending programs and set the stage for replication in the region. This could include building stronger partnerships, focusing on product documentation, addressing knowledge and coordination gaps with energy partners, and expanding energy portfolios to include a wider range of technologies and uses.

- **Both the MFI and energy company must be committed to energy-lending.** Providing a loan for modern energy systems requires serious commitment from both the MFI and the energy companies. To succeed in the long run, energy needs to be seen not only as relevant to the core business and complementary to the MFI's goals and mission, but also as a means by which to meet those objectives. Although many East African countries have a relatively few energy product suppliers, MFIs should only pursue partnerships with those that share a similar mission of providing affordable energy services to lower-income populations and that are willing to take on additional responsibilities in order to do so. The same can be said for energy companies in establishing financing relationships with banks and MFIs—partnerships should be pursued strategically with respectable organizations that share the same institutional goals.
- **Clearly define roles and responsibilities.** Before getting into energy lending, all stakeholders should agree on a set of criteria that clearly defines responsibilities, model of delivery, contribution of resources, promotion and marketing, staff and user training, default management, warranties, and after-sale service, to name a few. Outlining the roles, expectations, and approach in an MOU between the MFI and the energy company has worked well for both Faulu and KUSCCO.
- **Conduct market research and demand assessments to determine potential size of the market and to develop a clear delivery mechanism.** Another key to success is the importance of conducting a survey of the existing energy supply chains, clients' current uses of energy, and the energy financing environment before introducing an energy loan product. As demonstrated by KUSCCO, prior market research to gather energy end-user demographic information can help an MFI profile the energy demand and needs of existing clients, the scale of potential demand, clients' capacity to pay, etc. and. The loan product can then be tailored to particular client groups.
- **Focus on what you do best.** When designing a strategic partnership between an MFI and energy company, it is almost always best for each to focus on their respective core competencies. In the Faulu Kenya lending model, the MFI carries out credit provision and management (including keeping account records, appraising and approving loans, assessing collateral, collecting payments, etc.) and the energy company focuses on the technical issues of supplying, installing, maintaining, and repairing the energy systems.
- **Loan delivery mechanisms should be reviewed periodically (and revised, if necessary).** As often as can be managed, MFI staff should review the effectiveness of each energy product model with the aim of continuously improving service delivery. Possible points of revision could include adjusting interest rates, loan repayment terms, and payment, revising processes to disburse equipment, and monitoring after-sale service. Such revisions should be based on a feed back system that encourages energy suppliers and clients to voice their concerns regarding financing and delivery of energy equipment and its use.
- **Diversify technology and loan product option.** MFIs and energy companies have an opportunity to expand energy lending even further by offering loans for income-generating activities, productive use, and electricity grid connection, or combining energy loans with housing, sanitation, and rural enterprise development programs.

- **Address knowledge gaps and improve communication and co-ordination between the energy and microfinance sectors.** Expanding energy access through microfinance loans, especially into the rural areas, is largely hindered by a lack of co-ordination and poor communication between the energy and microfinance sectors. Addressing these issues with energy partners can improve the ability of MFI staff to respond to client needs and questions about the technology and help reduce monitoring and repair costs. Finally, there is a need to share information between the larger microfinance and energy companies to improve understanding of the emerging field and of each other. MFIs should document their experiences in financing energy systems and communicate them to other MFIs, related subsidiaries, and similar regional umbrella organizations on regional and global bases.
- **Improve how energy loans are tracked.** At present, both Faulu Kenya and KUSCCO make energy loans as part of their consumer or business loans; their energy lending is not a separate product. Lack of specific data on energy lending makes it difficult to track performance and profitability, not to mention preventing the MFI from identifying bottlenecks in service delivery that could affect customer satisfaction and product expansion. MFIs should formulate and track information that shows performance of the energy loan over time, how energy loans have been accessed, what types and volume of energy technologies have been sold, how many clients have purchased energy technologies, etc. The MFI should evaluate the profitability of energy loans in comparison with other products, analyze overhead costs, and assess sustainability. Energy loans should be tracked and evaluated in the same manner as any other core business product of the MFI.
- **Streamline service delivery process to cut down on lead time.** Clients of both MFIs reported that the service-delivery process was sometimes excessively long (up to two months) from the time a client expressed interest in a loan to installation of equipment and client training. This bureaucratic slow down has led to customer dissatisfaction, early cancellation of loans, and loss of clients, particularly with the solar products. MFIs should pay special attention to the timeliness of energy loan disbursement and equipment delivery and try to minimize administrative hurdles. Improvements could include streamlining the process of individual loan applications and demanding that energy companies make timely delivery of the energy equipment.

CHAPTER 1 • INTRODUCTION AND METHODOLOGY FOR PROJECT

1.1 BACKGROUND

Contrary to popular belief, expenditures among the poor in sub-Saharan Africa on inefficient and low quality energy services are surprisingly high. The East Africa region's poor spend proportionately more on energy than the rich and generally lack access to efficient, affordable, and clean modern energy sources, such as solar, micro-hydro, or liquefied petroleum gas (LPG). Some estimates suggest that East Africans spend an average of one-third of the household's already low monthly budget on poor quality energy services. Improving access to modern energy services can, therefore, help to increase incomes among East Africans by improving productivity, creating employment, and providing access to markets. However, the high up-front costs associated with modern energy continue to be a major obstacle preventing most of the region's population from taking advantage of cleaner and more efficient technologies.

Experience in South Asia, Latin America, and some parts of Africa suggest that appropriately designed loans, mainly from microfinance institutions (MFIs), can improve poor people's ability to afford and take advantage of the many benefits of modern energy services. This report takes a closer look at this burgeoning field as it relates to the East African context, specifically the Republic of Kenya. The MFIs identified for this study for Africa region were Faulu Kenya and the Kenya Union of Savings and Credit Cooperatives (KUSCCO), both operating in Kenya and headquartered in Nairobi. The two MFIs studied constitute different but complementary dimensions of the microfinance sector in Kenya. Faulu Kenya is a more typical formal microfinance institution founded as an offshoot of a larger international NGO, but has since become a private limited company whose core clientele are micro-enterprises. KUSCCO, on the other hand, is an umbrella support institution for savings and credit cooperatives (SACCOs), which serve the MFI's clientele.

1.2 METHODOLOGY

1.2.1 MFI Selection Process

The research in East Africa gathered in-depth information on each MFI's lending program, how it fit within each organization's overall lending portfolio, and how the MFI engaged its customers and energy companies in order to provide products and services to customers.

MFIs who wished to participate in the action research project, *Using Microfinance to Expand Access to Energy Services*, were asked to submit an expression of interest along with details of their institutional profile, institutional performance, energy products, and documents of commitment by management and board of directors to participate in this action research. Only legally registered MFIs were eligible. Based on the expressions of interest received (nine from Asia, six from Africa),³ the Small Enterprise Education and Promotion (SEEP) Network and Sustainable Energy Solutions (SES) selected the MFIs for the research project. Pre-requisites for MFI selection were:

3. Action research on the energy environment in Latin America and energy lending by MFIs is underway. To date, the desk study is finished and will be published with this report.

1. Established financial sustainability or a clear commitment to and progress toward achieving financial sustainability (typically demonstrated by >75 percent operational sustainability and a business plan demonstrating how financial sustainability will be achieved);
2. Three or more years of operations; and
3. Existing loan product(s) to meet clients' energy-related needs (for households and/or businesses).

The MFIs were paid an honorarium to partially defray any costs related to their participation, and in turn helped coordinate the Asia Research Consultant team's visit. More importantly, the MFIs received in-kind benefits from the extensive input by local and international experts on their energy loan product(s), exposure to new ideas and innovations, lateral learning and information sharing with other MFI participants in the research, and opportunities for greater international recognition and presence through publication of the *Using Consumer Lending and Microfinance to Expand Access to Energy Services* research reports and the synthesis/analytical paper, plus the dissemination activities of SEEP and the advisory group.

1.2.2 Work Plan Summary

The research was designed to explore the opportunities, barriers, costs, and impacts associated with MFIs that have integrated energy lending into their portfolio of products, and encompassed a desk review, literature search, field research, documentation, and analysis of business models, clients, and operations of the four MFIs in the Asia region. A framework of questions was developed by SEEP and SES to guide the team's field research. Deliverables provided to SEEP and SES were a presentation to each MFI, progress reports on each MFI studied, a draft report, and a final report.

Intensive coordination between the research team and the MFIs, and between the team and SEEP/SES, led to an agreed-upon work plan, research design, and time line. The work plan designated crucial milestones where SEEP/SES intervention was necessary before moving forward to the next stages. The desk research sought background and base-line data on the country, MFI selected, and its energy suppliers/partners, plus other microfinance and energy stakeholders. Based on information from each MFI about its operation, outreach, and energy stakeholders, site visits of 5–6 working days were planned. Guided by the MFI, primary data was collected through direct interviews with key staff, clients, loan officers, and equipment suppliers.

The East Africa research team synthesized the research results and developed and finalized the report. The draft of the final report was distributed to an advisory board, SES, SEEP, and the other MFIs participating in the study (NUBL, SEWA, SEEDS, and AMRET in Asia, and Faulu Kenya and KUSCCO in Africa) and their respective energy service suppliers to get feedback prior to finalizing the report.

1.2.3 Field Visits

Before the field visit,⁴ the desk review developed a brief country profile to understand the socio-economic situation; banking/financial, microfinance and energy sectors; regulations governing the microfinance and energy sectors; and key microfinance and energy players in the country. It also examined the institutional profile of each MFI, its energy service sources, and any initiatives undertaken in energy lending.

The field visits included meetings with the three stakeholders: MFI (bank management, loan officers), clients, and energy service companies. Some of the key players were identified by the team through the desk review and others via references from the selected energy players. The clients interviewed were selected by the MFI, and represented the full range of energy products offered by the MFI. Further, obtaining data needed for impact analysis was also a

4. See the list of data obtained during field visits in Box 1.1.

Box 1.1 Typical Data Collected During Field Research

Microfinance Institutions

1. Organizational information (ownership, governance and strategy, products offered, microfinance policies, management systems, funding sources).
2. Financial statements necessary for carrying out financial performance assessment
3. Impact study (past research by MFI, if any, and system adopted to identify impacts)
4. Details of collaborations with energy suppliers; terms and conditions of contract(s); experience working with energy suppliers, other energy suppliers, and energy products available in the market
5. Genesis of the energy loans and rationale on how product designs were determined
6. Specifics of energy loan product(s), such as target group, energy client profile, lending methodology, product design, technology, energy delivery model, end uses of energy loans, portfolio tracking, funding sources, risk mitigation strategy, external collaborations, trainings, marketing strategy, etc.

Clients

1. Direct and indirect impacts on households, individual livelihoods, and quality of life
2. Pattern of energy product usage in past and present
3. Past, current, and future energy needs of the clients
4. Client cash flows, willingness to pay for energy services, knowledge and understanding of energy technology/products, training provided to operate energy technology, benefit derived from energy products
5. Problems faced by clients in managing energy loans (if any)
6. Details of interactions between clients and energy suppliers
7. Client's access to information on energy products

Energy suppliers

1. Details of contract with MFI, direct sales, after-sale service to clients, details of interactions with MFI and client
2. Details of the delivery model adopted to service clients
3. Rationale for technology selected for MFI energy lending products
4. Market infrastructure made available to clients
5. Marketing and outreaching strategy
6. Constraints and opportunities in working with MFIs

Others (conditional)

1. Sector facilitator: Details of type, level, and mechanism of interventions (technical assistance or financial incentives) provided by the sector facilitator that influence current and/or future energy lending program of participating MFIs
2. Other MFIs: Model and loan characteristics of energy loans offered by other finance institutions to understand the general level of competition in the microfinance sector
3. Local market surveys: Energy products offered in the market and general level of competition locally in energy

challenge because the East African MFIs' energy products were not separate from their general loans, or in their MIS. Their impact studies did not relate to energy loans specifically.

1.3 DATA ANALYSIS

1.3.1 MFIs

Data was collected on each MFI's outreach (number of groups, clients, and branches), portfolio (disbursement, outstanding, recoveries, etc.), and sources of funds (loan, grants, and equity). Data primarily came from the accounts and MIS department at the head office of the respective MFIs and through discussions.

Data on client profiles, baseline energy expenditure, capital cost of alternative energy (such as solar systems), loan amount, loan installments, current energy expenditure, and tangible and intangible benefits from using alternative energy was also gathered. This information was used to analyze the cost savings or increase in income from using better energy solutions and to understand other intangible benefits that the clients may have received. Data primarily came from visits to individual client households.

1.3.2 Energy and Microfinance Stakeholders

Secondary data, from annual reports and other publications, was gathered to understand MFI operations and programs. Research publications on the potential of energy sources and energy markets were also reviewed. After the country field visit, additional data was required in a few areas to complete the report. The team sent email inquiries to the MFIs, sector facilitators (e.g., relevant government institutions, development agencies, donor institutions, NGOs), and the energy market players (e.g., energy suppliers, industry associations, energy service companies and enterprises, energy project developers). Despite the gaps, the data used for analysis was mostly based on information collected at the time of the field research and does not include the information made available after the field research.

CHAPTER 2 • KENYA COUNTRY CONTEXT

2.1 SOCIO-ECONOMIC ENVIRONMENT

Despite maintaining a certain degree of positive fiscal and monetary performance over the last decade, Kenya remains among the poorest countries in the world. The economic decline over the last 10 years is largely due to **stop-and-go** macroeconomic policies, the slow pace of institutional reforms, and governance problems. It is exacerbated by the effects of drought and floods, decline in external resources, and low commodity prices. As a result, the slow down in economic growth, coupled with an increasing population and other aggravating factors (including HIV/AIDS), has led to a decline in per capita income. The number of Kenyans living below the official poverty line (defined as \$17 per month in rural areas and \$36 per month in urban areas)⁵ is currently around 56 percent, with about three-quarters living in the rural areas, and the number of urban poor is on the rise.

The challenge now facing Kenya is to achieve sustainable economic growth and reduce poverty. The government's program to address this challenge is outlined in the "National Poverty Reduction Strategy Paper" (PRSP) officially introduced by the government of Kenya in June 2001. The product of a broad-based consultative process among key stakeholders, the PRSP outlines the priorities and measures necessary to achieve economic growth and poverty reduction, including (1) accelerated economic growth and rising productivity of all sectors, (2) equitable distribution of national income, (3) alleviation of poverty through provision of basic needs; (4) enhanced agricultural production; (5) industrialization; and (6) accelerated employment opportunities, and (7) improved rural-urban balance. These objectives have more recently been articulated in Kenya's "Economic Recovery for Wealth and Employment Creation Strategy." The main economic policy challenge facing the government has been to place the domestic economy on a recovery path and to redress rising poverty.

Energy has an obvious impact on the overall growth of Kenya's economy. In order to achieve the ambitious national development objectives set out in the PRSP and other related development policies and meet the Millennium Development Goals, Kenya must secure sustainable, cost-effective energy supplies to fuel commercial growth. The Kenyan government plans to expand electricity generation from 843 MW in 2006 to 1,202 MW by 2008 to meet projected economic growth. Additionally, the power sub-sector is being reorganized to better mobilize financial resources and attract private investment.

2.1.1 Banking Sector Overview and Financial Service Suppliers

Microfinance in Kenya largely began as a downscaling of commercial bank operations and government programs. In the 1980s, several large banks began to channel funds from bilateral and multilateral donors to small and medium-size enterprises. These initial small-scale finance operations now make up the microfinance portfolios of K-REP Bank, the Co-operative Bank of Kenya, Kenya Commercial Bank, and Equity Bank and Family Finance Building Society. At present, there are two broad sources of financial services to the small and medium enterprise (SME) sector in Kenya—formal and informal institutions.

5. World Bank, *World Development Indicators 2004* (Washington, DC: World Bank, 2004).

Table 2.1 Comparative Energy Consumption in 2000 and 2001

COUNTRY	ELECTRICITY CONSUMPTION PER CAPITA (KWH) 2001*	COMMERCIAL ENERGY CONSUMPTION PER CAPITA (kg oil equivalent, 2000)**
Uganda	66	26
Kenya	140	96
Tanzania	85	41
Brazil	2122	717
South Africa	4313	2649

* Vijay Modi, "Energy Services for the Poor," paper commissioned for the UN Millennium Project (Geneva: UNDP, Millennium Project Task Force, 2005).

** United Nations Common Database, http://unstats.un.org/unsd/cdb/cdb_help/cdb_quick_start.asp

Funding from formal institutions is largely comprised of co-operative societies, non-governmental organizations (NGOs), commercial banks, and government institutions. Informal institutions—sources of funding for SMEs—include rotating savings and credit associations (ROSCAS) and moneylenders, and family and friends. Even with a large range of financing options, the penetration of informal and formal institutions is still very shallow in Kenya with a majority of SMEs never receiving credit or other financial services.

Table 2.2 Funding from Formal and Informal Financial Institutions

	MEMBERSHIP BASE	FUNDING METHODOLOGY	REGULATION
Formal institution			
Savings and credit co-operative societies (SACCOs)	Mutual membership organizations, such as SACCOs and ROSCOs. In 2005, there were 2,700 SACCOs with over 2.5 million members.	Pools voluntary savings from members in form of shares. Shares form basis for extending credit to members.	Regulated by the Co-Operative Societies Act (2007)
Kenya Post Office Savings Bank Ltd.	Individuals with small savings	Provides deposit services	Supervised and regulated by the Ministry of Finance
Non-governmental organizations (NGOs)	- Microfinance NGOs and community-based organizations - Over 50 NGOs in Kenya offer microfinance.	Provides microfinance along with social welfare services. Uses informal community-based systems to deliver credit and savings services.	Varies; some operate as limited companies or building societies. Regulated by Micro Finance Act (2007).
Informal institution			
Rotating savings and credit associations (ROSCAs) and self-help groups (SHGs)	Mutual membership clubs registered as social welfare groups	Members pool resources which are lent to individual members in turns.	Many smaller ROSCAs are not formally registered. SHGs are registered under the Department of Culture and Social Services.

2.1.2 Financial Sector Regulation

The Kenyan government currently operates a monetary policy geared to low levels of underlying inflation under a liberalized foreign exchange regime. Although the economy depends on market-driven interest rates, the determination of rates is impeded by the domination of the commercial banking sector by four institutions (out of 45) and a large stock of non-performing loans. These non-performing loans are holdovers from a volatile period of high inflation in

the 1990s. By 2001, bad and non-performing loans were as high as 40 percent.⁶ Additionally, heavy borrowing by the government in the past decade from the domestic market has also contributed to high interest rates for credit in the productive sector, which has “crowded out” private sector borrowers. Interest rates continue to remain high, driven in large part by weak competition and inefficiencies within the banking and financial sectors.

2.1.3 Microfinance Sector Regulation

The microfinance sector is influenced by two pieces of legislation currently before parliament awaiting debate, the Micro Finance Bill and the SACCO Bill. The Micro Finance Bill sets out clear terms and conditions for MFIs that wish to undertake deposit-taking and other banking activities. The act contains adequate safeguards for savers, including membership in a deposit protection fund administered by the Central Bank. The SACCO Bill has evolved from earlier bills—Co-operative Societies Act (1966), introduction of SACCOS; Co-operatives Societies Act (1997), self-regulation; and Co-operatives Act (2004), efficient and effective management. The SACCO Bill establishes the regulatory authority, responsible for registering, regulating, and supervising SACCOs in Kenya. The Micro Finance Bill was approved and enacted by Parliament in early 2007.

2.2 ENERGY SCENARIO OVERVIEW

The majority of Kenya’s population currently lacks access to modern energy services, which severely limiting the potential for economic and social development. Most Kenyan households depend on traditional biomass resources, including fuelwood and charcoal for cooking and kerosene for lighting. Despite recent promotion of liquefied petroleum gas, fuelwood, crop/animal residue, and charcoal continue to dominate Kenya’s household energy mix, representing approximately 80 percent of the cooking and heating fuel for urban areas; in rural areas, traditional biomass resources supply 95 percent of the rural household energy. In addition to denuding forests, reliance on inefficient traditional biomass sources has detrimental impacts on health, gender, and income poverty in Kenya. Lack of clean, affordable, and efficient energy services in the rural areas is also contributing to growing rural-to-urban migration.

Table 2.3 Energy Indicators in East Africa

COUNTRY	ENERGY CONSUMPTION (%)		ELECTRIFICATION (%)	
	Biomass	Modern Fuels	Urban	Rural
Kenya (% of population)	70	30	46	4
Tanzania (% of population)	90	10	38	2
Uganda (% of population)	93	7	8	1

Source: East African Community (EAC), “Development Strategy” (Arusha, Tanzania: EAC, 2005).

2.2.1 Energy Resources

The primary energy resources in Kenya include biomass, hydropower, solar, and geothermal energy—each described briefly below. In addition, energy resources that show potential in Kenya but are yet to be developed on a major scale are biogas and wind. Kenya does not have any substantial fossil fuel resources and must import supplies from abroad.

2.2.2 Cooking Fuels

Kenya’s reliance on biomass resources, mainly fuelwood and charcoal for cooking in households and commercial applications, is detrimental to the environment and can impede many poverty reduction efforts. Kenya’s charcoal industry includes over 200,000 producers and currently contributes almost US\$ 400 million to the economy annu-

6. Republic of Kenya, “9th National Development Plan, 2002–2008.”

Table 2.4 Energy Resources in Kenya

SOURCE	SUPPLY	DEMAND	STATUS
Fossil fuels (oil and LPG)	Relatively few domestic resources	Important source of commercial energy in Kenya, mainly used in the transport, commercial, and industrial sectors. Current consumption well over 2.5 million tons of oil equivalent (TOE)	Current market for domestic LPG (excluding hardware) is 20,000 tons (~US\$ 35 million) annually. Government continues to play a major role in stimulating petroleum exploration activities by attracting international oil companies through production sharing contracts to explore the hydrocarbon resources with the ultimate aim of striking commercially exploitable deposits. Private sector dominates supply and distribution activities.
Biomass	About 2% of Kenya's land area is covered by forests which produce about 45% of the biomass supplies. The balance of energy sources is derived from farmlands in form of woody biomass and crop/animal residues. Annual demand for fuelwood and other biomass in Kenya is estimated at 34.3 million metric tons.	Main source of energy for cooking and heating needs in rural (fuelwood) and urban (charcoal/fuelwood) areas	Currently accounts for 68% of total primary energy consumption and over 90% of energy consumption in rural areas. Heavy dependence on biomass is a considerable environmental threat, with deforestation rates in Kenya estimated at 3–4 percent annually.
Hydropower	Significant resources, estimated at 1,558 MW in Kenya's main drainage basins	Electrification and motorized power	Of estimated potential of 1,558 MW, over 1,300 MW is for projects of 30 MW or larger.
Geothermal	Located in the Rift Valley, estimated at more than 2,000 MW potential of electricity generation	Electrification and motorized power	Currently, only 165 MW of the potential geothermal supply has been developed.
Solar	About 5 MW of photovoltaic power currently installed in Kenya	Solar photovoltaic is widely used for off-grid electricity. Main end uses are lighting, water pumping, refrigeration, and telecommunications. (Solar thermal is mainly used for heating and drying.)	Only a small fraction of the solar energy potential is being harnessed. Current market for domestic solar is 750 kW (~US\$ 10.7 million) annually. Year-round insolation is estimated at 4–6 kWh/m ² /day.

Source: S. Arungu Olende and Benard Osawa, "Energy Road Map to Achieving MDG Targets: Kenya Sectoral Energy Requirements," final report (Nairobi, Kenya: GVEP Kenya, 2006).

ally. Kenya's annual charcoal consumption is 2.4 metric tons, at KSH 20 per kilogram (US\$ 0.27/kg). The industry is almost entirely unregulated with current practices—largely unsustainable—contributing significantly to Kenya's deforestation.

In general, urban households in Kenya spend more money for cooking fuel than rural households. However, unsustainable deforestation, land degradation, and poor watershed management force rural inhabitants—mainly women—to spend an average of 4–6 hours per day collecting scarce fuelwood. The fact that many rural people can still obtain fire wood for "free" is a major obstacle in the promotion of cleaner, more efficient cooking fuels which require measureable cash expenditures. In urban areas, time spent collecting fuel is around 2.5-3 hours per day, and annual cost ranges from US\$ 36 in Kenya to \$140 in Tanzania and Uganda.⁷

7. EAC, "The Second EAC Development Strategy, 2001-2005" (Arusha, Tanzania: EAC, 2001).

Over the past 5–10 years, LPG has begun to emerge as a viable cooking fuel option in many urban and peri-urban areas of Kenya. In 2003, Kenya imported 50,000 tons, at US\$ 1.58/kg.⁸ At present, almost 11 percent of urban households utilize LPG technologies. Oil companies and local distributors are beginning to address the needs of lower-income households by offering smaller (6 kg, 8 kg, and 12 kg) gas canisters and bicycle delivery services for the canisters. However, the cost of LPG in the East African region is more than triple that of traditional biomass in urban and peri-urban areas.

Compared to biomass cook stoves, the cost of LPG equipment is very high. Additional barriers preventing mass scale-up of LPG include a lack of equipment standards and limited distribution network, especially to the rural areas. The Kenyan Ministry of Energy is currently pursuing regulatory reforms that will encourage LPG use and mandate equipment standardization.

2.2.3 Electrification

At present, less than 15 percent of Kenya's total population has access to electricity, and less than 5 percent of rural areas connected to the grid. The current installed capacity is about 1,240 MW, comprised of 55 percent hydropower, 10 percent geothermal, and 33 percent oil-fired thermal. However, under severe drought conditions, such as those experienced in 2000, effective capacity of hydropower plants is reduced from 640 MW to around 500 MW—barely enough to meet the demand. Per capita electricity consumption is extremely low at only 121 kilowatt hours (kWh). Access to electricity is hampered by limited capacity for resource mobilization, high consumer tariffs, and high grid-extension and -connection costs. The government's rural electrification program has had mixed success in penetrating rural areas, with slow progress mainly attributed to past mismanagement of financial resources, low consumer densities, and the scattered nature of rural settlements. Of those fortunate enough to be connected to the grid in rural areas, very few have made economic use of electricity mainly due to lack of awareness of income generating activities, lack of financing schemes to promote commercial enterprises, and poor entrepreneurship.

8. Ibid.

CHAPTER 3 • FAULU KENYA

3.1 ORGANIZATIONAL PROFILE OF FAULU KENYA

3.1.1 Structure and Operation

Faulu Kenya is a subsidiary of Food for the Hungry International (FHI), a Thailand-based Christian relief and development organization with operations throughout the world.⁹ FHI has been operating in Kenya since 1976 and has programs in Ethiopia, Uganda, Rwanda, Democratic Republic of Congo, Mozambique, and most recently Tanzania. FHI has a regional network of MFIs (Faulu) in Kenya, Uganda, and Tanzania. “Faulu” in Swahili means “success” or “to succeed.” Faulu aims at providing a range of financial services to low-income economically active members of the community.

One of the largest MFIs in Kenya, Faulu Kenya is registered as a limited liability company under the laws of Kenya. It was established as a lending project of FHI’s Kenya country program in 1991, converted to a private limited liability company in 1999, and became a public company in 2004. Faulu Kenya’s mission is “to be the leading provider of financial services to further holistic nation building and maximize stakeholder value.”¹⁰ The bulk of Faulu clients are owners of micro and small enterprises.

Faulu Kenya is one of the fastest growing MFIs in East Africa, expanding in 2005 by 90 percent. Currently, Faulu has outstanding loans of KSH 1.17 billion (US \$17 million), and loans distributed in 2006 are KSH 2.1 billion (US \$30 million). This rapidly expanding client base drawn from low-income economically active population segments with access to credit is highly attractive to energy companies seeking to expand their sales.

Faulu Kenya uses the group lending methodology—lending to a group of borrowers who are jointly liable for a single loan—supported by an elaborate institutional framework that works through mobilized groups. It is headquartered in Nairobi and has 20 branches operating in 30 offices, in 48 of Kenya’s 67 districts. It has 3,130 active groups, with about 70,000 clients (with 54,000 active loans), and a staff of just over 300. Faulu groups meet weekly to facilitate disbursement and recovery of loans. The group meetings are also used as a forum for receiving feedback on products and suggestions for new products.

Faulu Kenya undertakes business planning and product development through its operations and business development department, which houses research, marketing, credit administration, and operations. It has a fully developed process of “listening to clients” to identify new concepts for products, which is implemented in weekly meetings between its extension staff and client groups. This has enabled it to develop a broad product portfolio of consumer loans to augment its core product, enterprise development loans. Energy services are categorized as consumer loans by Faulu Kenya.

Faulu Kenya has modern computerized management information and accounting systems for monitoring business operations and performance. It has a high level of management efficiency with portfolio at risk of only 4 percent.

9. FHI is an international non-profit organization operating with 501(c) (3) charitable status from the Internal Revenue Service of the United States.

10. <http://www.faulukenya.com>

3.1.2 Funding Sources

In view of the absence of a legal framework for MFIs that allows them to take deposits, Faulu Kenya's loan fund base is derived from credit operations and borrowing on the open market in Kenya. It made history in 2005 as the first MFI in Africa to raise public funds by listing a corporate bond worth KSH 500 million (US\$ 7 million) through the Nairobi Stock Exchange. Faulu Kenya's energy product portfolio has been financed by its own resources, which may explain the low level of documentation (manuals, training materials, etc.).

3.2 ENERGY LOAN PORTFOLIO OF FAULU KENYA

3.2.1 Loan Products and Characteristics

Faulu Kenya currently offers three products as its energy loan portfolio.

Liquefied petroleum gas: This package includes the LPG cylinder, regulator, a burner, and (sometimes) a lantern. LPG is typically used in Kenya as a clean-burning cooking fuel, but can also be used for lighting, refrigeration, and powering electric generators and small engines. The typical repayment period is six months with a maximum repayment period of one year. The rate of interest is 10 percent charged on a flat rate basis.

Solar: The Mwangaza loan product for the purchase of solar systems includes panel(s), batteries, wiring, regulator, and sometimes an inverter. The solar systems are typically used for lighting (home or business), charging mobile phones and small batteries, and providing electricity to small direct current (DC) appliances, such as radios and black/white televisions. These loans have a ceiling of KSH 100,000 (US \$1,430) and a repayment period of up to one year. The rate of interest is 20 percent charged on a flat rate basis.

Biogas: The most recent energy loan product offering is biogas, and is still in the concept design stage. Biogas is typically used as a cooking fuel, but can also provide lighting with the introduction of pressure lanterns. Faulu Kenya has initiated discussions with a biogas energy company to provide loans to clients to purchase a biogas plant.

Table 3.1 Faulu Kenya's Energy Products

PRODUCT	TECHNICAL COMPANY	TECHNICAL DETAILS	INTEREST RATE	REPAYMENT PERIOD	AVERAGE COST	LOAN CEILING	WARRANTY PERIOD
LPG	Kenol Kobil, Total, BP, Shell, Caltex	Includes gas cylinder (6kg, 12kg), regulator, burner, sometimes a lantern	10 percent flat rate	Up to one year. Most common loan period 3–6 months.	Varies greatly according to use (burner and 6kg cylinder cost around \$65)	None, determined by client's needs and ability to service loan	Varies with company
Solar	Chloride Exide	Varies, panel, batteries, cables, inverter, etc.	20 percent flat rate	Up to one year, weekly payments	US\$ 140–380	\$1,430	1 year for solar panels, 1 year for batteries and accessories
Biogas*					Minimum of KSH 30,000 (~US\$ 425)		

* Faulu Kenya's biogas product is still in development.

3.2.2 Energy Loan Clients

The bulk of Faulu clients are owners or managers of small enterprises, mainly found in low-income sections of urban areas. Through face-to-face interviews, it was found that a majority of Faulu's clients depend on paraffin and charcoal for lighting and cooking needs. Respondents indicated that these traditional energy sources are attractive because they are available and sold in small packages, sometimes in a size that covers only a day's worth of energy needs. As can be expected, non-participating client respondents recognized "high up-front cost" as the main impediment preventing their adoption of renewable energy technologies. Some clients also responded that renewable energy technologies are associated with "rich people" only, and they had low expectations of ever acquiring such equipment.

Gender distribution. Data provided by Faulu Kenya on energy loan disbursements in June–December 2006 sheds some light onto the gender issues associated with LPG and solar lending and borrowing in Kenya. While more female clients have obtained LPG loans (475) than males (297), more male clients borrowed funds for solar home systems (13). Only two female clients obtained loans for solar home systems within this period. Responses from Faulu staff indicated that more female clients obtained loans for LPG than for solar because LPG fit the women's largest energy need—for cooking. This data also indicates that lighting was the second highest priority for female clients, whereas it was the first priority for male clients, followed by communications and power for appliances. This somewhat explains the higher proportion of male clients for solar energy loans. Faulu Kenya currently has 213 clients with active energy loans, made up of 148 women and 65 men.

Table 3.2 Faulu Kenya Energy Loans by Type (June–December 2006)

	TYPE	NO. OF SYSTEMS	AMOUNT DISBURSED (US\$)
LPG	Female	475	\$41,889
	Male	297	\$26,956
Solar	Female	2	\$380
	Male	13	\$2,634
Total		787	\$71,860

Source: Faulu Kenya, internal data, 2006.

Rural versus urban. Given the lack of energy-specific data monitoring and evaluation, it is difficult to determine exactly how many energy loan clients reside in rural, peri-urban, or urban areas. However, it is possible to analyze the geographic distribution of current energy clients based on the branch where the loan application was first received. At present, Faulu Kenya has three branches that are considered "urban" in Nairobi and surrounding peri-urban areas. The rest of Faulu Kenya's branches are located in smaller semi-urban areas and serve what can be considered "rural" clients.

Faulu Kenya currently has 196 rural LPG customers versus only 10 urban LPG customers in and around Nairobi. All current solar customers (7 clients) are in rural areas. Over the last year, Faulu Kenya has disbursed energy loans to 196 urban clients and 591 rural clients—roughly 25 percent urban and 75 percent rural (June 2006–January 2007).

3.2.3 Financial Analysis

The Faulu Kenya energy product line is not managed as a separate loan category and is therefore tracked and reported on as part of the basic business loan portfolio. This lack of energy-specific data monitoring made it somewhat difficult for the research team to conduct a rigorous analysis of the financial performance of the energy products. This analysis was conducted using the most accurate and current data on the energy products available from Faulu Kenya and the energy companies.

Between 2003 and December 2006, about 4,000 clients took advantage of Faulu Kenya's energy products, about 5.7 percent of the total client base. The majority of clients sought the LPG product as compared to only 7 current clients who procured the solar energy product. Over 90 percent of the products were delivered in 2004 and 2005, mainly due to a heavy marketing effort promoted by Faulu management. The number of energy products has since plateaued, in part due to a drop-off of marketing efforts and a potential saturation of easy-to-identify urban clients. For the two years that the product was at its peak, the energy-lending portfolio was a very small addition to total portfolio.

Table 3.4 Comparing Energy Portfolio with Total Loan Advances in 2004 and 2005

PARAMETER	2004	2005
Total loans advances	\$7,633,964	\$11,274,169
Energy (LPG) loans	\$117,142	\$175,714
% age of energy loans	1.53%	1.56%
Units of LPG	1,600	2,400

Figures for advances and energy loans are in Kenya shillings. (US\$ 1 = KSH 70)

The comparative size of the energy portfolio declined significantly in 2006 as is indicated in the table below.

Table 3.5 Comparative Loan Products (June 2006)

PRODUCT TYPE	NO. OF ACCOUNTS	OUTSTANDING LOAN BALANCE (US\$)	% OF TOTAL LOANS	% OF OUTSTANDING LOAN BALANCE
Business loans	26,085	11,118,641	61.74	71.40
Agriculture loans	8,561	3,301,717	20.26	21.20
Other consumer loans	2,166	256,363	5.13	1.65
LPG loans	135	6,170	0.32	0.04
Shares loans	4,607	744,573	10.90	4.78
Education loans	667	140,725	1.58	0.90
Health loans	28	3,909	0.37	0.03
	42,249	15,572,101	100.00	100.00

Source: Faulu Kenya, internal data, June 2006.

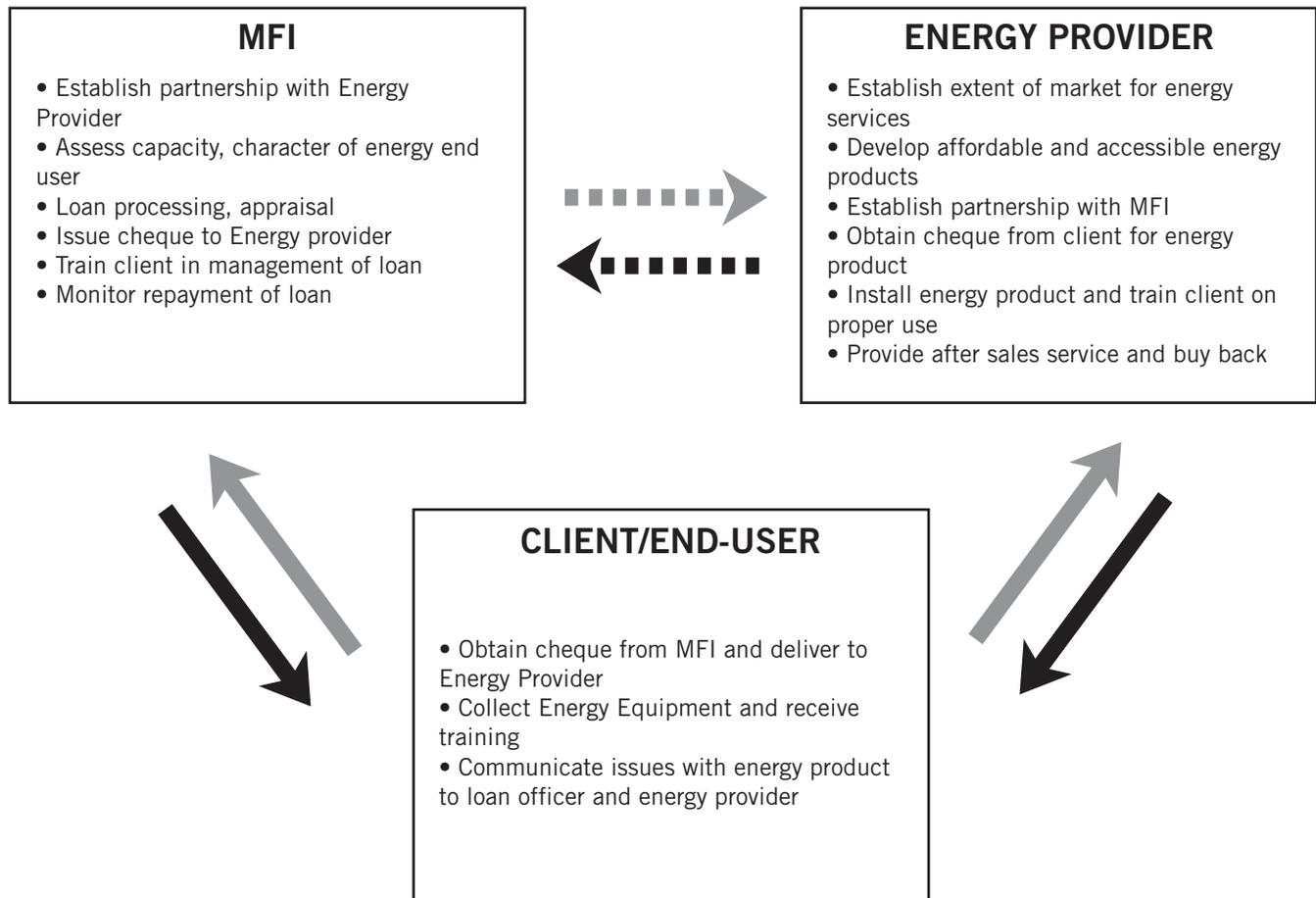
In June 2006, of 42,249 clients with active accounts, only 135 had outstanding LPG loans. Since LPG loan products have a typical repayment period of only six months, this could imply that very few new loans were disbursed in the first half of 2006. Also included in the "business loans" category are the seven solar system units outstanding as of June 2006. These seven solar products were worth KSH 95,260 (US\$ 1,361), with a balance outstanding of KSH 59,646 (US\$ 852) as of June 2006. The small number of solar loans is possibly because solar systems are more complex, they lack support from the energy companies, there are weaknesses in the supply chain, the cost is higher, and clients can only access the technology as an addition to a business loan. A notable characteristic of solar energy products is that they are relatively small. Their prices range between KSH 10,000 (US\$ 143) and KSH 27,000 (US\$ 386), and are mainly marketed and used for household lighting.

3.2.4 Model and Methodology

Faulu Kenya's energy portfolio operates through partnerships with several energy companies to make modern energy technologies more affordable. Each stakeholder—the MFI, energy company, and client—has a defined role in facilitating the smooth delivery of modern energy technologies.

Figure 3.1 Faulu Kenya Basic Energy Loan Delivery Model

Faulu Kenya Energy Loan Delivery Model



Solar. The solar product is offered through the existing Faulu group structure. During weekly meetings of client groups, the loan officer gives a “pitch” for the various products being offered, including solar. When a client group expresses interest in the solar product, the client fills out a loan application which is then sent to the loan processing department in the Nairobi head office. Once processed, the loan application triggers a request to Chloride Exide, the solar energy company, for installation. Faulu then disburses payment directly to Chloride Exide, who then installs the system and gives the client basic training in proper use and maintenance. The average loan process, from the point a field officer receives a completed application to the time the system is installed and user is trained, can take between three weeks and two months.

LPG. The LPG loan model managed to lower the transaction costs associated with service delivery. Originally, Faulu procured the equipment from the service company then distributed the product to their clients during regular weekly group visits. In many cases, this meant that Faulu branches had to serve as inventory sites for LPG equipment from procurement to delivery (by a loan officer). The Faulu Kenya field officer, not the energy company, provided basic technical training to the client upon delivery. The current process for LPG loans has changed and is more efficient. Now clients receive a payment voucher in the name of the energy company and collect the products themselves. Although this process reduced transaction costs, it had an unintended effect of removing a powerful, personal connection that was emerging between clients and Faulu field staff.

Biogas. The biogas product is still in the initial development stage. Faulu Kenya product development staff learned of biogas options through conversations with a private biogas entrepreneur interested in marketing the product to the MFI's clients. Faulu and the energy company are still discussing how to structure a biogas loan product. The basic biogas digester design being considered will have a base price of about 30,000 KSH (~US\$ 430), which Faulu has determined to be affordable by their existing client base. The main issue to address before rolling out the product is the requirement that biogas clients have at least two cows in their possession. At this point, Faulu is considering the possibility of financing both the biogas facility and purchase of cows.

The solid lines in the figure above represent relationships between stakeholders that include clear and concise action items and who is responsible for them, i.e., delivering a loan application, issuing a check, providing a service, and communicating a technical problem. The dashed lines between the MFI and energy company represent a relationship that is not as clearly defined, with redundant or non-existent data collection and management, unclear division of marketing and outreach responsibilities, undefined communication channels, and a general lack of feedback. The negative impacts of this imprecise relationship (communication and coordination difficulties) and potential ways to address these impacts are outlined in the discussion section.

3.3 DISCUSSION

3.3.1 Strengths of the Faulu Kenya Energy-Lending Model

Strong management. Faulu Kenya has a very high level of efficiency, achieving portfolio-at-risk (PAR) of only 4 percent, compared to the Kenya commercial banks' rate of over 20 percent. Faulu has broad outreach throughout Kenya, with a presence in 50-plus of the 67 districts of Kenya, and more than 65,000 active clients. As a mission-driven MFI concerned with improving the overall well-being of its clients, Faulu Kenya management stresses the importance of maintaining portfolio quality over the desire to expand portfolio reach.

Complementary products. The energy-lending portfolio complements the institutional goal of supporting small and medium enterprises using a "holistic" approach to business development. As modern energy systems can improve the efficiency of productive uses and reduce business and domestic energy costs, loans for modern energy systems are seen by Faulu Kenya as essential tools for improving the income-generating capacity of their clients.

Subsidiary relationship. Faulu Kenya has an ability to leverage external funding and support and draw media attention to its efforts due to its subsidiary relationship with FHI. Additionally, FHI can easily share lessons learned from Faulu Kenya's energy-lending program with subsidiary MFIs in Uganda, Tanzania, and other African countries.

3.3.2 Obstacles and Barriers

Lack of energy-specific data management. At present, Faulu does not track or manage energy-specific data separately from core business products, making a rigorous assessment of energy product performance somewhat difficult. Faulu management estimated that it has an estimated 10 percent profit margin on energy-lending, but more specific energy data is necessary to verify this and conduct an appropriate analysis of the energy product's performance. Lack of energy data monitoring also makes it difficult for Faulu to determine where costly bottlenecks in service delivery may be occurring and develop means to address related high transaction costs.

Limited potential for reaching lower-income populations. Faulu Kenya mainly focuses on providing financial services to the owners of small and medium enterprises. This is not a weakness in and of itself, but it limits Faulu Kenya's ability and potential for delivering energy services to lower-income populations that may not be engaged in formal economic activities. Clients can access LPG loans as an initial loan or as a concurrent loan.

Lengthy energy loan processing. The lengthy loan process to purchase energy products—from the time a field officer receives a completed application to when the system is installed and user is trained—can take between three weeks and two months. This partly explains the slow start of Faulu Kenya’s energy lending, particularly for the solar product. Central processing of loan applications only adds to the time lag between application and installation.

Limited distribution of technical companies. Faulu, other Kenyan MFIs, and related financing organizations are limited by where they can offer quality energy products due to a shortage of rural energy companies or enterprises. At present, most technical companies are located in the five or six largest Kenyan cities, although some companies do have rural service centers and rural dealers. This constraint forces the MFI to focus the marketing of their energy products on clients in and around energy companies and their agents, which tend to be in close proximity to major urban and peri-urban areas. Limited distribution of technical companies at the village level means little technical support at the client level to sustain effective installation of equipment and maintenance. The price of purchasing, installing, and servicing modern energy systems increases dramatically from urban to rural areas. This price increase is particularly prevalent in the solar market, where the existing supply chain is quite long, and several layers of actors apply their mark-ups and transaction costs. Faulu’s LPG product is also limited by the location and number of fuel stations and distribution centers, which are predominantly located in urban areas and along major roadways. LPG cylinders require significant transportation costs (with the exception of transporting a single cylinder via bicycle), which also limits the product to urban and peri-urban areas.

Limited understanding of the commercial potential and profitability of energy products. At present, Faulu is marketing its energy options purely as a consumer product, essentially ignoring most income-generating possibilities. In doing so, Faulu is limiting the reach of its energy products to existing business clients who desire modern energy services for domestic consumption. Additionally, Faulu does not see energy as profitable business line. In fact, one Faulu Kenya official commented that “there is no business in energy.” Modern energy technology loans are viewed as mitigating the risk to Faulu Kenya’s core business product, i.e., clients spending business loan funds on domestic energy purchases. There is potential profitability through economies of scale if Faulu’s energy product design can minimize administrative expenses by shifting most of them to client groups and the energy company.

Low technical capacity of MFI. Most Faulu clients responded when interviewed that, if given an option, they would prefer a comprehensive energy center, whereby an individual could obtain a loan, energy equipment, and advice on the use and maintenance of such equipment—all in one place. From the client’s perspective, not having energy technology specialists at Faulu Kenya branches is a major weakness. With the current model of service delivery, Faulu must rely on the technical capacity of energy service suppliers, many of whom are located in urban areas. Ideally, all relevant staff at Faulu should be trained to effectively communicate the benefits of modern energy, compare costs of various energy systems and help the clients make the best choices, and understand basic equipment operation.

3.3.3 Key Lessons Learned and Opportunities for Scale-Up

Focus on what you do best. Faulu Kenya learned several valuable lessons in designing its loan methodology for LPG. In its original form, Faulu Kenya internalized many of the costs associated with lending for the purchase of LPG, i.e., storage and delivery of equipment, delivery of payments, etc. However, Faulu changed this mode of delivery to focus on their core business—issuing and servicing loans—and outsourced the technical and administrative activities that were driving up overhead costs associated with energy lending.

Periodically review energy loan methodology. Another lesson from Faulu’s original experience with LPG is the importance of periodically reviewing the energy loan products to evaluate their effectiveness and financial performance. When Faulu’s LPG loan product waned, management restructured the methodology to allow the energy company to transport and install the equipment, and provide training—all normal components of their business model. Additionally, this review of the LPG loan led to the idea of issuing vouchers to the clients, who can take them to the

energy company of their choice, further cutting the internal costs of servicing an LPG loan. The same performance and effectiveness evaluation methodology should be applied to Faulu's solar loan product, since the time lag between request and service delivery may be making the product less attractive.

Market energy products for both commercial and household purposes. Faulu currently markets energy lending purely as a consumer product to meet the household needs of their business clients. The MFI should expand this idea by recognizing the potential commercial applications of energy. It may not only be useful to their existing business clients but may also jump-start new businesses (solar-powered hair salons, for example), especially those dealing in energy (solar-powered battery-charging stations, etc.), who would need business *and* energy loans.

Diversify technical options and engage many technical partners. At present, Faulu only offers two energy products (with biogas in development) with relatively few technical partners. Faulu should engage other solar energy companies in Kenya, such as Davis Shirtliff, Shell Solar, etc., to expand their reach into rural and peri-urban areas, compete for lower-cost solutions, and explore other technical options that may meet currently unmet energy needs of their business clients.

Decentralize loan processing. As mentioned previously, the process from a Faulu loan application to installation of a solar home system averages 1–2 months, mainly because all loan processes are centralized in Nairobi. Currently, this time lag causes some frustration among rural clients and may even deter a few from pursuing a loan with Faulu. As other competitors enter the energy-lending field, it will become essential that Faulu take steps to decentralize energy loan processing as much as possible to decrease time lag between application and installation, particularly of solar systems.

CHAPTER 4 • KENYA UNION OF SAVINGS AND CREDIT COOPERATIVES

4.1 ORGANIZATIONAL PROFILE OF KENYA UNION OF SAVINGS AND CREDIT COOPERATIVES

4.1.1 Structure and Organization

The Kenya Union of Savings and Credit Cooperatives (KUSCCO) was registered as an association under the cooperatives act of the Kenya in 1973 to function as a national umbrella organization for savings and credit cooperatives (SACCOs). Traditionally, SACCOs have been formed by salaried members who share an employer. The SACCO concept, however, has been adopted by farmers, traders, and lately, transport operators, micro-enterprise entrepreneurs (Jua Kali¹¹), and community-based organizations found in both urban and rural areas.

KUSCCO is a second-tier microfinance institution—its wholesale program supports the establishment and development of MFIs—which focuses on vibrant membership of SACCOs that aim to economically empower clients and members through efficiently managed and effectively delivered financial services. KUSCCO's current membership is more than 1,776 SACCOs,¹² which operate in every district of Kenya. SACCOs mobilize savings from their members as the basis for delivering loans and other financial products. KUSCCO operates as a technical advisor to the SACCOs by building their capacity and helping them develop client-responsive products. KUSCCO also runs a central finance facility providing wholesale credit to address cash flow constraints of member SACCOs. Member co-operatives can apply for a loan through KUSCCO for further on-lending to SACCO clients.

To effectively serve its widely dispersed membership, the KUSCCO has five regional and six sub-regional offices with regional managers coordinating the union's activities. The range of SACCO clients under the KUSCCO umbrella represents a large sector of the Kenyan economy. The Kenyan SACCO movement is currently the largest¹³ in Africa with over 3,000 SACCOs. Total SACCO assets are estimated at KSH 80 billion (US\$ 1 billion) and estimated members' deposits (both share capital and savings) of KSH 72.5 billion (US\$ 967 million). Co-operatives account for about 40 percent of the country's national savings.

4.1.2 Funding Sources

Sources of funding for KUSCCO include donor contributions (both national and international) to the SACCO loan fund, consulting fees, and other revenues from services provided to SACCOs and interest earned on loans to SACCO members. KUSCCO has received some support from Shell Foundation as loan funds for on-lending to SACCO members to purchase LPG and biogas. KUSCCO operates an inter-lending program for participating SACCOs, called the Central Finance Programme. SACCOs can access loans from KUSCCO at only 11.5 percent monthly declining balance rates for on-lending to their clients at 12 percent or more.

11. Swahili term, meaning “under the hot sun,” which basically explains the operating circumstances of many micro- entrepreneurs.

12. KUSCCO, “Annual Report and Accounts” (Nairobi: KUSCCO, 2005). The country had 2,700 active SACCO societies with a share capital of KSH 120 billion (US\$ 1.5 billion) and outstanding loans of KSH 90 billion.

13. KUSCCO, “Essential Features of the SACCO Regulatory Bill,” paper prepared in support of an improved regulatory environment (Nairobi: KUSCCO, 2005).

4.2 ENERGY LOAN PORTFOLIO OF KUSCCO

The energy-lending portfolio operates under the business development and marketing department. This department also handles loans for consumer and household products, such as mobile phone handsets, TVs, refrigerators, etc. KUSCCO has modern IT-supported management information systems and produces audited accounts annually. It also has a clear monitoring and evaluation system.

4.2.1 Loan Products and Characteristics

KUSCCO developed its energy product portfolio after a detailed market analysis by its research department. This initial research contributed to the stability in product delivery and broad acceptance by member SACCOs. To facilitate the introduction and delivery of renewable energy technologies, KUSCCO restructured its operations and established the Special Projects Unit in the head office. This has been further strengthened through additional market research contracted by KUSCCO in 2006 and signing formal agreements with energy companies for biogas and solar.

KUSCCO began lending for energy technologies in 1999 and now offers loans for LPG, solar, and biogas. KUSCCO purchases modern energy systems in bulk directly from the energy companies and keeps an inventory for further distribution to member SACCOs at below-market prices. KUSCCO maintains technical staff dedicated to the administration of modern energy systems. Energy products are currently offered in 43 out of 72 districts in Kenya.

Liquefied petroleum gas (LPG). KUSCCO purchases LPG burners and cylinders in bulk from Kenya Oil (Kobil), adds a small profit to the bulk price of LPG (10–15 percent), and distributes them to the SACCOs for eventual delivery to the end-users. The SACCOs then pay in cash or receive a wholesale loan from KUSCCO for on-lending to the end-users. SACCOs recover the loans on behalf of KUSCCO. The individual clients are assessed a declining balance interest rate of 12–15 percent per annum. KUSCCO benefits from the trade margin (volume pricing from the energy suppliers) and the sale of the financial product (wholesale credit to the SACCOs). The SACCO earns interest on the loans to the energy clients and the client receives high-quality energy services at lower-than-market prices.

Solar. KUSCCO has created a special unit and recruited a dedicated technician to coordinate solar home system (SHS) installations. End-users approach KUSCCO through their respective SACCOs which approve the loan applications. KUSCCO commissions the installation of solar units with the participating energy companies. KUSCCO provides the energy products in the form of a wholesale loan to the SACCO, which then on-lends to the end-user and proceeds to recover the loan.

Biogas. The biogas product is still in the trial stage and has yet to reach many SACCO clients. KUSCCO has, however, entered into formal agreements with Sustainable Community Development (SCODE), a rural development NGO in the biogas construction business. With support from Shell Foundation, KUSCCO and SCODE conducted the preliminary work necessary to ensure successful roll-out of a biogas lending program, including: identification and training of installers, development of product-specific training materials, SME training on products and energy audits, etc.

Table 4.1 KUSCCO Energy Products

PRODUCT	TECHNICAL COMPANY	TECHNICAL DETAILS	AVERAGE COST	LOAN PERIOD	LOAN SIZE	WARRANTY PERIOD
LPG	Kenol Kobil, Caltex	Burner + 6 kg or 12 kg cylinders	US\$ 40–\$70 (KSH 3,000–5,000)	6–18 months	66.5% of system cost	Varies with company
Solar	Chloride Exide, Solagen Ltd., Davis and Shirliff Ltd.	Varies: panel, batteries, cables, invertor, etc.	US\$ 425–1,785 (KSH 30,000–125,000)	1–2.5 years	66.5% of system cost	1.5 years for solar panels, 1 year for batteries and accessories
Biogas	Sustainable Community Development (SCODE)	Variously sized biogas digesters	US\$ 1,285–2,140 (KSH 90,000–150,000)	6–18 months	66.5% of system cost	Not applicable

4.2.2 Financial Analysis

The research team ran into difficulties in obtaining energy-specific data for KUSCCO due to the timing of field visits and nature of internal reporting on consumer loans. By 30 June 2005, KUSCCO had 500 affiliated SACCOs who were active borrowers of energy loans. This number had increased to 520 SACCOs by 30 June 2006.

Table 4.2 Summary of Units Sold and Dollar Values (June 2005)

TYPE OF ENERGY	UNITS SOLD	VALUE (US\$)	REMARKS
LPG since 1999	16,000	1,041,095*	Assorted items, 6 kg and 12 kg canisters, burner cookers
Solar since 2001	50	40,000	Assorted systems for home lighting
Biogas since 2005	10	20,547	Supported by Shell Foundation

* This translates to about US\$ 65 per unit. *Source:* KUSCCO internal reporting, June 2005

During the field visit, KUSCCO energy staff indicated that the compilation of financial figures for fiscal year 2006 (yet to be completed) is likely to indicate a large rise in energy product adoption among clients, especially in sales of LPG. For example, KUSCCO recorded loans for 25,000 LPG units in 2006, up from the 16,000 units between 1999 and 2005.

Member SACCOs are offering energy lending through partnership with KUSCCO in 43 out of 72 districts of Kenya. In the period July 2005–June 2006, KUSCCO disbursed 9,300 modern energy system loans, valued at US\$ 1 million. KUSCCO's reported a repayment rate of 100 percent, although this number only indicates that all SACCOs taking advantage of bulk energy loans from KUSCCO have repaid in full, not the repayment rate of individual borrowers. This can be explained by the fact the SACCOs pay for the products to KUSCCO in advance and then proceed to recover the loans from their members. A more in depth analysis of the repayment rate of the 9,300 individual energy loans disbursed is not possible at this time as these loans are tracked at the individual SACCO level.

The reported income from loans for modern energy systems, with the 10–15 percent mark-up (depending on the technology), is reported at US\$ 139,144. Operations in the delivery of modern energy products contribute significantly to the income of the business development and marketing department. Although somewhat outdated, the table below demonstrates the importance of energy products in the department's overall income.

Table 4.3 KUSCCO Energy Lending Income (Business Development and Marketing Department)

YEAR	1999	2000	2001	2002	2003
Total income of BDM Dept. (US\$)	324,808	405,791	274,301	429,236	191,011
Income from energy portfolio (US\$)	181,069	342,136	236,752	93,200	28,652
% of BDM income from energy	55.75%	84.31%	86.23%	21.70%	15%

Source: KUSCCO, Annual Reports, 2000-2004.

An analysis of the energy portfolio versus the full KUSCCO portfolio and other non-consumer loan products was not possible due to the difficulty in obtaining energy-specific data.

4.2.3 Model and Methodology

To effectively deliver modern energy technologies, KUSCCO follows a partnership model that focuses on the comparative advantage of each SACCO and energy company. SACCOs participate in the partnership as the primary level MFIs financing the energy services through direct loans to clients. KUSCCO operates as the technical advisor, undertaking market research to identify needs and the feasibility of energy loans, as well as coordinating delivery of energy products to the various SACCOs for onward delivery to the end-users. KUSCCO is also the link between the energy companies and SACCOs. The energy company develops and markets the technology and provides after-sale service.

For KUSCCO, information on modern energy requirements is collected from clients through the SACCOs, which enter into loan arrangements with the clients. This information is collated by KUSCCO and used to manage its bulk equipment purchases.

The basic design of KUSCCO's energy-lending methodology is shown in Figure 4.1.

In this model, KUSCCO directly pays the energy company for bulk purchase of the energy products, distributes them to the SACCOs, which deliver the units to the clients. By partnering with KUSCCO, the energy company can offer products to a wide range of SACCOs with very little face-to-face interaction and lower marketing and transaction costs. In other words, the company can turn over inventory in large batches rather than focus on promoting individual products. Additionally, the energy company is only required to train staff members of KUSCCO (as opposed to members of hundreds of SACCOs) in the technical details of its product, and KUSCCO then provides training to SACCOs at no additional cost to the energy company.

4.2.4 External Support for KUSCCO Energy Lending

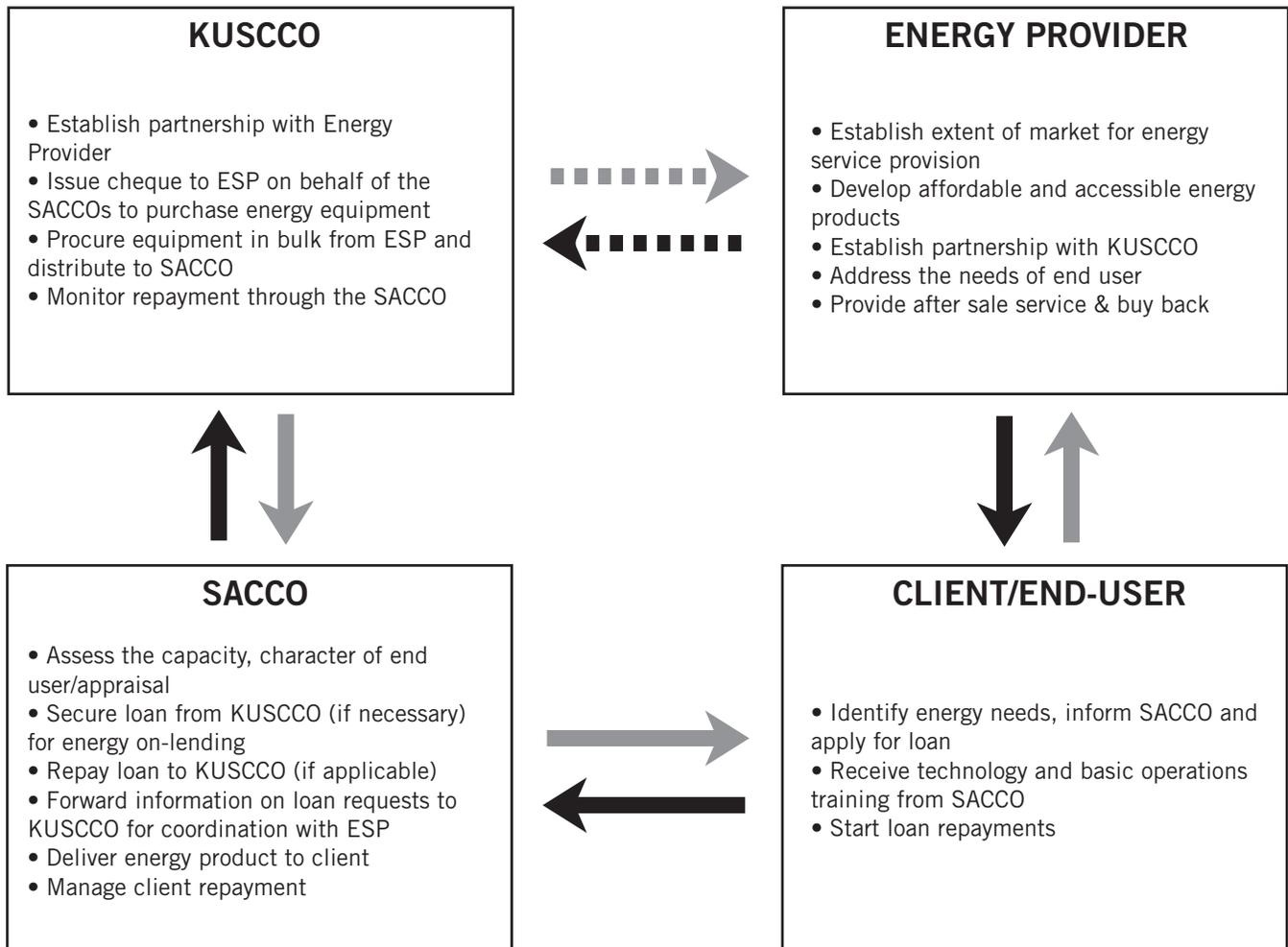
The KUSCCO energy-lending program has benefited from external support in the form of grants, technical assistance, and capacity building through Shell Foundation's Breathing Space Project and the Global Environment Facility and International Finance Corporation's Photovoltaic Market Transformation Initiative.

Breathing Space Project. In 2005, KUSCCO entered into a partnership with Shell Foundation in order to scale up its efforts to promote solar and LPG and to diversify into potential energy markets including biogas. With grants and technical support from Shell Foundation's "Breathing Space Project," KUSCCO was able to deliver more than 1,000 LPG units (burner and cylinder) to its members. The Breathing Space Project promotes technologies that reduce indoor air pollution, which is largely caused by cooking on open biomass fires in poorly ventilated rooms. Breathing Space Project loans are available to individual SACCOs, and individual SACCO members. They are also available to small and medium-sized entrepreneurs that have registered with a self-help group to purchase LPG cookers and cylinders as well as biogas digesters. Biogas was added to the energy-lending portfolio due to the large number of existing KUSCCO members with ownership of zero-grazing cattle.¹⁴ Credit granted to SACCOs and their members

14. Zero-grazing cattle is confining dairy cattle in a stall and developing a cut-and-carry fodder system. www.farmingsolutions.org

Figure 4.1 KUSCCO Basic Energy Loan Delivery Model

KUSCCO Basic Energy Loan Delivery Model



through the Breathing Space Project is advanced for 6–18 months for LPG and biogas and is limited to 50 percent of the cost of each product.

With support from Shell Foundation’s Breathing Space Project in 2006, KUSCCO developed a strategic plan for scaling up LPG and biogas service delivery with the following ambitious objectives. (Scale-up assumes 1–5 percent penetration of the potential market over five years.)

Table 4.4 Projected Scale-Up of KUSCCO Energy Products (November 2006)

PRODUCT	NUMBER OF UNITS (VALUE IN US\$)		
	1 year	2–3 years	4–5 years
LPG (assorted cooking kits)	1,000 (US\$ 5.8 million)	3,000	5,000
Biogas digesters (various sizes)	60 (US\$ 9 million)	450	1,200
Photovoltaic systems (various sizes)	150 (US\$ 7.5 million)	1,000	3,000
Total	US\$ 22.3 million		

Shell Foundation and KUSCCO are working together to develop mechanisms that ensure secure, convenient, and affordable access to alternative energy, including printing promotional materials, developing curriculum and training materials for participating SACCOs, guidelines on energy products and services, and building management information systems within each SACCO to enable formal procedure and methodology of capturing energy information.

The Photovoltaic Market Transformation Initiative. Funded by the Global Environment Facility (GEF) and International Finance Corporation (IFC), the Photovoltaic Market Transformation Initiative (PVMTI) aims to address market barriers to the promotion of solar technologies by making appropriate financing available, stimulating business activity, and accelerating photovoltaic penetration in Kenya, India, and Morocco. Funding from PVMTI is planned to be distributed to Barclays Bank of Kenya, which will then offer loans directly to those SACCOs that are members of KUSCCO. Under PVMTI, KUSCCO will play a key role in marketing and monitoring the program through its member SACCOs in partnership with Solagen Ltd. and Chloride Exide Ltd., the participating Kenyan photovoltaic technical service companies. As part of the PVMTI program, KUSCCO signed a memorandum of understanding (MOU) with Chloride Exide Ltd. to install and maintain the solar systems and offers KUSCCO members a 15-percent discount from normal retail prices. Also a result of PVMTI, KUSCCO has established a “solar shop” that serves as a base where end-users can access replacement and consumable components of solar systems. As of the time of this study, the PVMTI program has yet to be implemented in Kenya.

This model of energy service delivery is displayed in Figure 4.2.

As demonstrated in the above chart, the KUSCCO special solar unit plays an important coordinating and monitoring role in delivering solar energy services. This unit is responsible for identifying and training local sub-contractors to install and repair solar units, overseeing and inspecting installation, transporting solar systems to local contractors, and overseeing end-user training—all responsibilities normally falling to the energy company. In this model, the energy company plays a limited wholesaler role by importing, storing, and delivering systems in bulk to the KUSCCO headquarters office. KUSCCO bears responsibility for the remainder of the service delivery process, cutting down staff time, transportation, and transaction costs normally faced by the energy company.

4.3 DISCUSSION

4.3.1 Strengths of the KUSCCO Energy-Lending Model

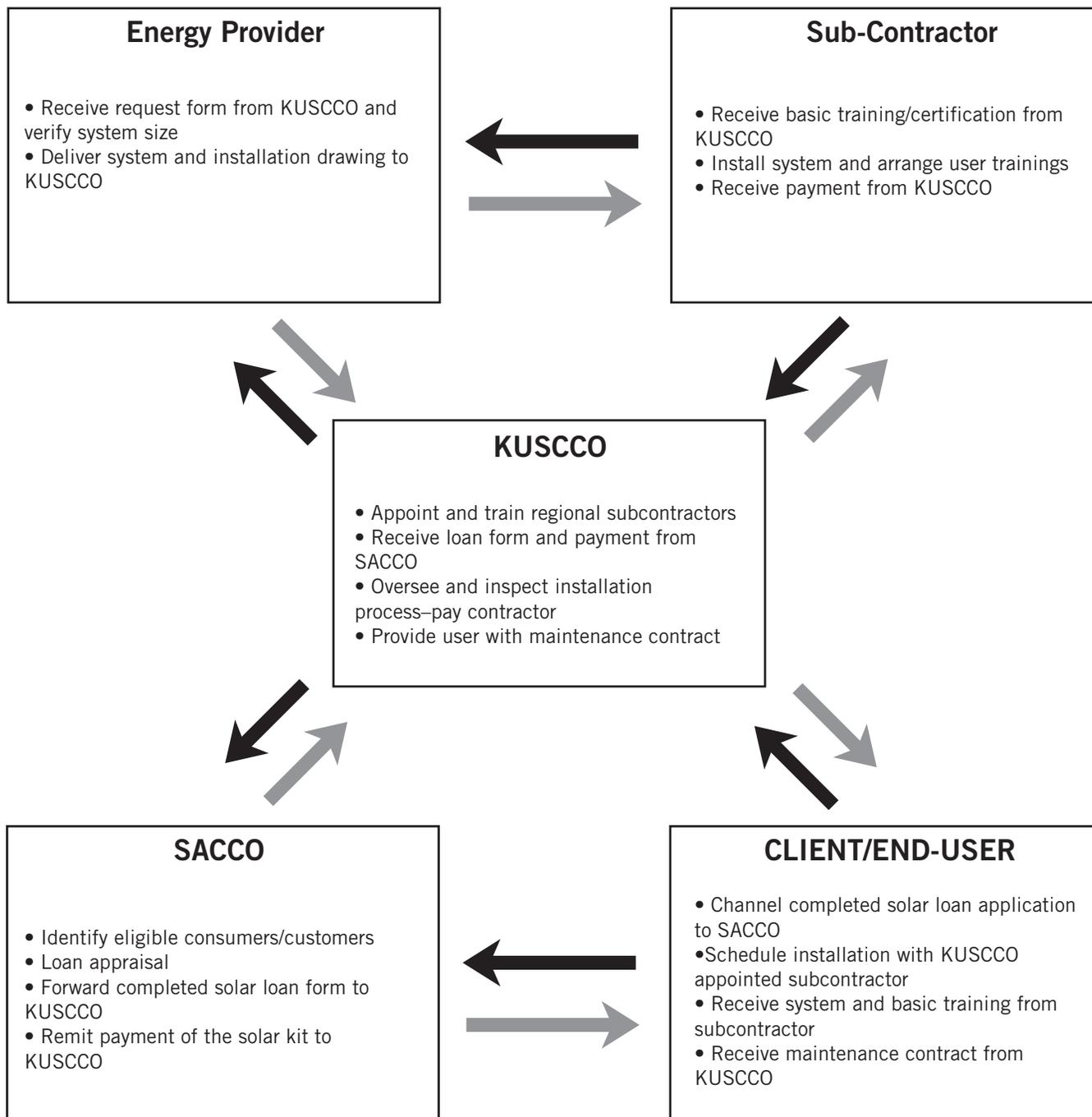
Strong and well-coordinated membership. With a membership of 1,776 affiliated SACCOs and a potential market of about 3,000 SACCOs in the country, KUSCCO has a wide outreach and covers all districts of Kenya. This diverse membership includes organizations representing the interests of lower-income populations that are not otherwise serviced by more formal microfinance institutions due to this group’s lack of measurable monthly salary. This all-inclusive membership gives KUSCCO an advantage in delivering energy products to the poorest of the poor.

Commercial viability of energy products. Its model of energy-service delivery is commercially viable, even profitable, for KUSCCO. By participating in the delivery of modern energy products, KUSCCO benefits from purchasing in bulk at discounted prices and distributing to SACCOs through wholesale loans. Additionally, the large client base of KUSCCO’s participating SACCOs allows it to achieve economies of scale in delivering energy products. For KUSCCO, information on energy loan requirements is collected from clients by the participating SACCOs who enter into loan arrangements with the clients. This information is collated by KUSCCO, which then proceeds to procure the equipment in bulk for delivery to the clients through the SACCOs. The SACCOs either pay KUSCCO cash for delivered products or apply for a wholesale loan from KUSCCO, which is then repaid when the SACCO recovers the loan from their clients. This process decreases the transaction costs faced by KUSCCO in delivering energy products.

Separate unit for energy lending and dedicated energy technician. In response to the large volume of energy transactions and desire for technical assistance, KUSCCO created a special unit within the business development department

Figure 4.2 KUSCCO PVMTI Solar Loan Delivery Model

KUSCCO PVMTI Solar Loan Delivery Model



specializing in installation, service, maintenance, and training of energy products. This unit minimizes KUSCCO’s reliance on energy companies to train clients, loan officers, and marketing personnel in the benefits and technical issues of energy products. Additionally, having an in-house technician cuts down on the time required to answer client’s technical questions and provide minor repairs to energy systems—all further enhancing client satisfaction.

External support for energy product development and scale-up. The KUSCCO model has benefited from external funding and technical assistance provided through the Photovoltaic Market Transformation Initiative program and the Shell

Foundation's Breathing Space Project. Both programs provide KUSCCO with marketing support, loan guarantee funds, technical training for key staff, and business planning support. This external support is helping KUSCCO build awareness, scale up profitable and successful energy products, and explore other energy products that it otherwise would not have the resources to pursue alone.

4.3.2 Obstacles and Barriers

Lengthy service delivery. Some SACCOs reported that the service-delivery process can be excessively long (up to two months), at times leading to customer dissatisfaction and early cancellation of loans (before energy equipment is delivered), particularly for the solar product. This is in part due to the many layers of administration involved with processing the client's application to the SACCO and the SACCO's application to KUSCCO. Although this is not a common occurrence across all participating SACCOs, it is a point worth noting as KUSCCO scales up the energy portfolio.

Limited motivation in promoting energy products. As with many other energy-lending programs, KUSCCO does not focus on energy loans as part of its core business. Rather, loan officers promote energy products in response to the needs of their clients. This is a weakness because the energy loans are more difficult and time consuming for field officers to administer than other products. Even though the study found that there is sufficient management support in most SACCOs to pursue energy clients, the performance of loan officers is limited to the amount of time they can spend with clients per week. Therefore, many loan officers tend to concentrate on non-energy loans when faced with the technical knowledge and time necessary to promote energy products.

Poor understanding of energy as a major driver of income-generating activities. At present, KUSCCO sees energy loans as a way to prevent business loans from being spent on energy equipment—which they believe reduces the amount of the original loan being applied to the business. KUSCCO management and participating SACCOs are being short-sighted in not recognizing the full potential of modern energy services to improve income-generating potential. KUSCCO also does not currently recognize that provision of energy services can potentially create income-generating activity for its clients. For example, a solar system could be promoted as a means of earning income: it could power a battery-charging business or a hair salon in off-grid communities.

Lack of equipment standardization. Inconsistent standards of energy equipment and lack of the appropriate size for some customers can hinder smooth flow of the sales within the energy supply chain. This issue was particularly difficult for KUSCCO and its participation with the Photovoltaic Market Transformation Initiative because the program required the MFI to monitor the specifications and standards of the energy equipment purchased by its clients—a task normally undertaken by the energy company and/or sub-contractor. Standardization of energy equipment is also a key challenge that the petroleum sub-sector is facing. LPG clients can only refill their canisters from the service companies who supplied their equipment and no other LPG energy company. At times, if the specific supplier runs out of stock, clients can not refill from any other supplier.

Limited technical capacity of KUSCCO and participating SACCOs. Even though KUSCCO has trained its own staff in technical installation and equipment inspection, it is dependent on a single person for more complex products like solar and biogas rather than a trained cohort from the energy companies. This could create serious problems if KUSCCO develops no backup installation/inspection relationship with energy companies and something happened (personal or administrative) to the single KUSCCO technical staff support. Additionally, participating SACCOs must rely on the technical knowledge of KUSCCO headquarters staff rather than going to local energy companies directly.

4.3.3 Key Lessons Learned and Opportunities for Scale-Up

Prior market research is essential. Conducting comprehensive research on energy prior to engagement can help identify the potential size of the market and develop a clear delivery mechanism. Prior market research should in-

clude data on the current energy mix, electrification rates, future grid extension plans, modern fuel usage, distribution of energy companies, and number of participating dealers and distributors, etc. In the case of KUSCCO, this prior market research also assessed the financial and management capacity of potential participating SACCOs, identified internal needs for technical knowledge, and mapped existing product coverage against projected product demand. Although this intense market research may not be possible for smaller MFIs with fewer resources, it is an advisable first step in exploring the energy-lending market for any MFI with sufficient research staff.

KUSCCO is well-positioned to reach the poorest of the poor. As an umbrella of diverse SACCOs, KUSCCO is well-positioned to deliver modern energy services to the poorest of the poor. In Kenya, traditional formal deposit-taking MFIs tend to cater to the financial needs of lower-income populations already involved in some form of income-generating activity or business. These individuals tend to draw a monthly salary from an employer or have a bank account related to a personal business activity. These more formal MFIs tend to shy away from the unemployed, lowest-income populations due to the high risks associated with servicing their financial needs. Additionally, this study learned that the lowest income populations—i.e., those without measurable cash income and/or existing bank accounts—prefer to deal with locally formed and managed credit cooperatives over more formal MFIs headquartered in cities like Nairobi. This is mainly due to a perception by the lowest-income clients that formal MFIs are impersonal, inflexible, have high collateral requirements, and tend to be stricter than SACCOs in enforcing repayment terms. Through a network of almost 2,000 local SACCOs, KUSCCO has the ability to deliver energy products to lower income populations that would not otherwise deal with formal MFIs like Faulu Kenya.

CHAPTER 5 • CONCLUSION AND RECOMMENDATIONS

5.1 SUMMARY OF FINDINGS ON ENERGY LENDING BY FAULU KENYA AND KUSCCO

5.1.1 Origin and Establishment of Energy Lending

Both Faulu Kenya and KUSCCO established energy-lending programs largely in response to repeated client requests and a desire to avoid having business loans diverted to purchase energy products. In the case of Faulu Kenya, energy products complement the institutional goal of providing affordable and sustainable financial services to their clients. It was conceived, funded, and implemented without the help of external assistance. From 1991 to 2003, Faulu focused on offering loans to small and medium enterprises expressly for revenue-generating purposes. This single product offering did not meet all of the financing needs of Faulu's clients. A large number were spending business loans to meet energy needs of their households or were requesting loans for household energy services not offered at the time. The business development department re-evaluated the program and the potential market demand. In 2003, Faulu established the energy lending program mainly to avoid diversion of its core business loans for energy purposes and to be more responsive to client requests.

KUSCCO's energy-lending program was established as a way to serve the energy financing needs of the member SACCOs after an initial detailed market analysis by its research department (which contributed to the stability in product delivery and broad acceptance by SACCOs). To facilitate the introduction and delivery of renewable energy technologies, KUSCCO restructured its operations and established a specialized unit within its head office. This was further strengthened by additional market research in 2006 and the development of formal agreements with energy companies for biogas and solar. KUSCCO now has a channel for consumer financing for the SACCO members to enable them to purchase modern energy systems, which otherwise would be out of reach financially.

5.1.2 Energy Loan Products

Clients of both KUSCCO and Faulu Kenya are able to take advantage of microfinance options to purchase energy technologies, including solar, LPG, and biogas, through the limited number of energy companies currently active in Kenya. The LPG products of both MFIs are made possible through partnerships with major petroleum companies including Kenol Kobil, Total, BP, Shell, and Caltex, as well as rural distributors and some major grocery store chains. Kenol Kobil is also offering affordable LPG products through partnerships with MicroKenya and Kenya Women Finance Trust, two additional Kenyan MFIs offering loans for the purchase of LPG systems.

Both MFIs offer loans for solar home systems through a partnership with Chloride Exide, the leading battery supplier in Kenya. Chloride Exide views solar systems as an "add-on" to their core battery business as a way to provide battery charging in rural areas and urban/peri-urban areas with electrification distribution problems. Chloride Exide is also working with MFIs, the Kenya Women Finance Trust and K-REP, to provide affordable solar home systems; and KUSCCO is partner with two solar companies, Solagen Limited and Davis and Shirtliff Limited. Both Faulu Kenya and KUSCCO clients rely heavily on the distribution of branch locations of solar companies (mainly in urban

areas) and registered franchises and distributors. KUSCCO subcontracts installation, maintenance, and client training to a network of qualified contractors.

At present, Faulu Kenya is in negotiations with several biogas promoters but has yet to disburse a biogas loan at the time of this study. Through support from Shell Foundation, KUSCCO is now providing loans for biogas in and around the Rift Valley and central regions of Kenya. Although biogas requires a very simple supply chain infrastructure as compared to solar or LPG, the limited number of qualified biogas technical companies (six) in Kenya is slowing the roll-out of these loan products. Existing trained and registered biogas promoters include Sustainable Community Development (SCODE), REECON, PERMAGI, and Kapsabet CITC. With the exception of SCODE, all of these biogas promoters operate out of Nairobi with no outlying branch operations or trained technicians. SCODE is based in Nakuru with a heavy presence in the Rift Valley and currently training technicians in the Mt. Kenya region.

Table 5.1 Comparison of the Faulu Kenya and KUSCCO Energy Loans

PARAMETERS	FAULU KENYA	KUSCCO
Energy companies	<ul style="list-style-type: none"> - LPG: Kenol Kobil, Total, BP, Shell, Caltex - Solar: Chloride Exide 	<ul style="list-style-type: none"> - LPG: Kenol Kobil, Total, Caltex - Solar: Chloride Exide, Solagen Ltd., Davis and Shirtliff Ltd. - Biogas: Sustainable Community Development (SCODE)
Technical details	<ul style="list-style-type: none"> - LPG: Burner, regulator, gas cylinder (6 kg or 12 kg) and sometimes a lantern - Solar: 20–120W system with panels, batteries, cables, and inverter 	<ul style="list-style-type: none"> - LPG: Burner and 6 kg or 12 kg cylinders - Solar: Various sizes of solar lighting kits and components (20W–140W), including panels, batteries, accessories, charge controller, and sometimes an inverter. - Biogas: Various sizes of digesters
Eligibility	Available to all active Faulu Kenya client groups on individual and group guarantee bases. Also available to non-clients interested in the purchase of LPG.	<p>Individual SACCOs, individual SACCO members, micro and small entrepreneurs who have registered with a self-help group and have complied with KUSCCO Breathing Space Project, ground rules, and regulations.</p> <p>Clients must contribute 33.5% of the energy system's full cost before loan can be processed.</p>
Interest rate	<ul style="list-style-type: none"> - LPG: 10% flat rate - Solar: 20% flat rate 	Varies based on SACCO internal requirements—usually a declining balance 12%-15% rate.
Repayment period	<ul style="list-style-type: none"> - LPG: Up to one year. Most common loan period 3-6 months. - Solar: Up to one year, weekly payments. 	<ul style="list-style-type: none"> - LPG: 6–18 Months - Solar: 1–2.5 Years - Biogas: 1–2.5 Years
Warranty	<ul style="list-style-type: none"> - LPG: Varies with technical company. Burner 8–10 years; regulator and valves, 2 years; cylinder, 10–20 years. - Solar: One year for panels, batteries, and accessories 	<ul style="list-style-type: none"> - LPG: Varies with technical company. Burner 8–10 years; regulator and valves 2 years; cylinder 10–20 years - Solar: 1.5 years for panels, 1 year for batteries and accessories - Biogas: To be determined
Credit size	<ul style="list-style-type: none"> - LPG: Dependent upon system needs and appraised ability to pay (usually between US\$30–200) - Solar: Maximum US\$ 1,430 	<ul style="list-style-type: none"> - LPG: Loan covers 66.5% cost of burner, cylinder, and accessories. No maximum. - Solar: Loan covers 66.5% cost of solar kit and accessories - Biogas: Loan covers 66.5% cost of digester

5.1.3 Loan Methodology and Characteristics

Table 5.2 outlines the differences in model and methodology between KUSCCO and Faulu Kenya's energy-lending programs. With the exception of marketing and promotion, Faulu Kenya's role in energy lending is clearly limited to providing credit for the purchase of renewable energy technologies. This model allows all stakeholders to focus on their core competencies, leaving much of the technical and delivery aspects to the energy company and the product delivery up to the client. KUSCCO, on the other hand, takes a much more hands-on approach to the provision of energy services through a special unit focused on energy. This unit plays a major role in ensuring product quality control and technical training of subcontractors and clients.

Table 5.2 Differences between the KUSCCO and Faulu Kenya Energy Models and Methodologies

PARAMETERS	FAULU KENYA	KUSCCO
Energy product marketing	Field officers promote energy products during weekly client group meetings. Energy companies also contribute through normal marketing practices.	KUSCCO and energy companies
Loan appraisal	Field officer and local Faulu Kenya branch manager	Varies with each SACCO, usually SACCO field officer or branch manager.
Loan approval	Approval levels vary. Branch managers approve lower value loans while senior management based in Nairobi must approve abnormally large energy loans.	SACCO wholesale loan from KUSCCO is processed through the central finance facility in Nairobi
Loan processing time	Average 10 days for LPG; between 3 weeks and 2 months for solar	Between 1 week and 1 month
Cash transfer	Voucher provided to client in the name of preferred energy company. Client delivers payment to energy company.	SACCO pays cash to KUSCCO (or applies for wholesale loan). KUSCCO issues check directly to energy company.
Service delivery/ installation	- LPG: Client picks up product at local service company or vendor location. - Solar: Chloride Exide installs system at client's residence.	KUSCCO procures equipment in bulk from energy company. - LPG: KUSCCO distributes products to SACCO for further delivery to clients. - Solar: Equipment is picked up by trained subcontractor and installed at client's residence.
Post disbursement services	Energy partner provides end-user basic training and product warranty	KUSCCO inspects installation, assures product quality, and provides product warranty.
Loan collection	Clients make payments in Faulu bank accounts and present proof of payment to field officer during weekly group meeting.	Individual SACCOs recover loans from their clients.
Other unique features	Relatively low transaction costs currently. For LPG, clients are able to choose their preferred vendor and interact with energy partner without MFI intermediation.	Clients have access to energy products at below market price due to KUSCCO purchasing in bulk. SACCOs have access to loans from KUSCCO at below-market interest rates for on-lending to clients.

KUSCCO purchases energy equipment at a bulk rate and offers energy loans for them on a declining balance basis, whereas most other Kenyan MFIs (including Faulu Kenya) offer loans for energy products at market price with a fixed interest rate. A fixed interest rate loan is one in which the rate does not fluctuate during the period of the loan, allowing the borrower to accurately predict payments. A declining balance interest rate loan is one in which interest is computed only on that portion of the principal still owed. Since a KUSCCO borrower only pays interest on that

amount of original principal that has not yet been repaid, interest paid will be smaller the more frequent the payments are made. The impact of this difference in interest calculations is portrayed in the two examples in Box 5.1.

Box 5.1 Comparison of Fixed Rate Interest and Declining Balance Interest

- **Fixed rate.** Suppose 40,000KSH (US\$ 571) is borrowed for a 40W solar system at 20% fixed (flat) rate and repaid in quarterly payments for one year—similar to what an average Faulu Kenya client would face. All four payments would be \$142.75 (principal) plus interest \$28.55 (20 percent of \$142.75), or \$171.30 each. The amount paid at the end of the loan period is **\$571 principal plus \$114.20 interest, a total of \$685.20.**
- **Declining balance rate.** Again, suppose 40,000KSH (US\$ 571) is borrowed for a 40W solar system repaid in quarterly payments for one year but on a 20% declining balance interest rate—similar to what an average KUSCCO client would face.

First payment = \$142.75 plus \$28.55 (20 percent of \$571.00 for one-quarter year), or \$171.30

Second payment = \$142.75 plus \$21.41 (20 percent of \$428.25 for one-quarter year), or \$164.16

Third payment = \$142.75 plus \$14.27 (20 percent of \$285.50 for one-quarter year), or \$157.45

Fourth payment = \$142.75 plus \$ 7.14 (20 percent of \$142.75 for one-quarter year), or \$149.89

At the end of the loan period, the borrower would have paid **\$571 (principal) plus \$71.37 (interest), a total of \$642.37—which is \$42.83 less than the fixed rate example.**

5.1.4 MFI Investment in Energy

Both MFIs were able to successfully establish energy lending on a small scale using internal funding mechanisms. In the case of KUSCCO, internal funds including the central finance facility were used to kick-start the energy-lending program. These initial funds will be followed by external support from the PVMTI program and Shell Foundation to further strengthen and scale-up energy-lending operations. For Faulu Kenya, energy lending was established using its own resources obtained from the open market. At the time of this study, Faulu Kenya was not a registered deposit-taking institution, which may hinder the amount of resources the MFI can dedicate to addressing the barriers to scaling up energy-lending activities unless external support is mobilized.

5.1.5 Relations with Energy Suppliers

Faulu Kenya and KUSCCO pro-actively engaged a range of energy partners in the provision of affordable and appropriate energy technologies. After initial consultations and market research, both MFIs signed an MOU with each major energy service partner outlining the details of payment, service delivery, after-sales service, etc. Within these energy-lending programs, the energy company plays various roles, including product promotion, sales and marketing, product delivery and installation, repair and maintenance, and after-sale buy-back.

From the perspective of the energy company, the main challenges with energy lending are client misuse of equipment and handling buy-back in rare cases of loan default. Energy companies indicated that it is sometimes difficult to estimate the cost of maintenance required during the warranty period because clients' understanding of and ability to use the equipment properly can vary widely. In some cases, the energy companies have registered losses due to the high costs incurred during the warranty period for maintenance and repair to equipment that was regularly damaged or abused by clients. Additionally, some energy companies recognized losses due to the difficulty in repairing and selling repossessed products. In theory, the energy equipment should be in good working order and the buy-back amount based on the amount of time the client has been with the equipment. As a result of the issues faced in handling buy-

back situations, many energy companies indicated that more in-depth user training was needed, and that preventative measures should be included in the MOU.

5.1.6 Management and Financial Capacity

Both institutions are highly profitable with annual audited financial statements, indicating efficient management and professionalism. Faulu Kenya produces standard financial reports with details on the quality of the loan portfolio. KUSCCO's reports are based on the requirements of the Cooperatives Act and do not include details on portfolio quality. However, KUSCCO does report on profitability of its various programs including energy-lending operations.

At this point, both KUSCCO and Faulu Kenya have secured sufficient funding for current energy-lending operations. However, continued scale-up of current energy products will require further investment in information technologies, technical training, and data management that may exceed current resources dedicated to the portfolio. Despite their management capability and somewhat sustainable access to internal funding for current energy-lending activities, the lack of energy-specific data monitoring at both MFIs studied is a major obstacle to successfully scaling up energy products.

5.2 LESSONS LEARNED

Although still in their infancy, the experiences of Faulu Kenya and KUSCCO can offer several lessons for the design, implementation, and scaling up of energy-lending activities in East Africa.

Both the MFI and energy company must be committed to energy-lending. The provision of consumer credit for modern energy technologies requires serious commitment from both the MFI and energy companies. From the perspective of the MFI, energy lending should only be pursued with the full support of management at all levels. Although many East African countries have a relatively small number of energy suppliers, MFIs should only pursue partnerships with those which share similar missions to provide affordable energy services to lower-income populations and which are willing to take on additional responsibilities in order to do so. The same can be said for energy companies in establishing financing relationships with banks and MFIs: partnerships should be pursued strategically with respectable partners that share the same institutional goals. Because energy lending is relatively new in East Africa, small problems (e.g., technical defects or improper installation) and bottlenecks in service delivery (e.g., lengthy loan appraisal process) can have dramatic and negative impacts on the reputations of players involved and the field in general. All stakeholders should play a proactive role in minimizing these problems and addressing any negative impacts, particularly in the early stages of implementation. MFIs and energy companies should continue to market the energy products past the initial “push” that tends to come with the introduction of new MFI products. For example, Faulu Kenya dedicated a considerable amount of resources in promoting LPG in the year 2004–2005, which led to growth of the product. However, this momentum did not continue into 2006–2007 when the product was no longer novel. MFIs and energy companies should evaluate marketing and promotion activities periodically to ensure consistency and market penetration.

Clearly define roles and responsibilities. Before pilot-testing any energy-lending operations, all stakeholders should agree upon a set of criteria that clearly defines the model of service delivery from initial marketing and promotion through to possible loan default and after warranty service. These responsibilities should be outlined in an MOU between all parties involved (MFI, energy company, donor, promoting agency, etc.) and should be reviewed periodically. However, having these obligations outlined on paper is not enough. The role played by each stakeholder in energy lending—and, more importantly, their understanding of each other's responsibilities—can make or break an energy-lending product. Time should be taken to ensure that what is clearly outlined in the MOU is understood by key staff members within the various branches and departments of the MFI and the energy company through training, workshops, and other educational materials. This small step can help to avoid bottlenecks in loan and product processing that can result in service delivery delays and client dissatisfaction or diversion.

Market research and demand assessments are needed to identify potential size of the market and to develop a clear delivery mechanism. Another key lesson learned is the importance of conducting a survey of the existing energy supply chains, current uses of energy, and the energy financing environment before introducing an energy loan product. As demonstrated in the case of KUSCCO, prior market research can help an MFI profile the energy demand and needs of existing clients, the scale of potential demand, capacity to pay, and energy end-user demographic information. This research should also include an in-depth analysis of the country and/or regional existing energy infrastructure and product supply chains. This could include coordination with government ministries to better understand urban and rural electrification plans and petroleum companies to understand current and future distribution plans for LPG and other fuels. The MFI's management team and/or business development staff should then use this research with internal data on existing MFI branch and client group locations to fully understand market penetration possibilities, identify potential energy partners, and begin to design the energy loan methodology.

Whenever possible, energy-lending partners should focus on what they do best. When designing a strategic partnership between an MFI and energy company, it is almost always best for stakeholders to focus on their core competencies. The Faulu Kenya lending model demonstrates that service delivery can be strong if both the MFI and energy company work within their expertise—the MFI carries out credit provision and management (including accounts record keeping, loan approvals, assessment of collateral, loan collection, etc.) and the energy company focuses on the technical issues related to supplying, installing, and providing maintenance and repair of the energy systems. This type of arrangement can cut down on training, administration, and transaction costs if managed properly. However, as demonstrated in the case of KUSCCO's solar loan product, it is not always possible for an MFI and energy company to avoid the need for cross-training. The creation of a special unit within KUSCCO dedicated to dealing with technical energy issues was a response to the difficulty that participating SACCOs and their clients had in obtaining technical feedback and advice on energy products. KUSCCO's case does not indicate a need to cross-train all MFI and energy staff, but does demonstrate the possible strength of having some dedicated technical staff within the MFI.

Loan delivery mechanisms should be reviewed periodically (and revised, if necessary). As often as can be managed, MFI staff should review the effectiveness of each energy product model with the aim of continuously improving service delivery. Possible points of revision could include adjusting interest rates, loan repayment terms, payment and equipment disbursement, and after-sale service. Such revisions should be based on a feedback system that enables the energy supplier and client to voice their concerns about delivery of energy equipment and its use. In the case of Faulu Kenya, periodic review of the LPG loan delivery mechanism led the MFI to make revisions to the payment and product disbursement processes which reduced transaction costs and staff time dedicated to energy lending.

Energy lending needs to be institutionalized. To succeed in the long run, energy needs to be seen as not only complementary to the MFI's goals and mission, but also as a means by which to meet those objectives. Without full management support, an energy-lending program can become dependent upon the time and dedication of one staff person responsible for promoting and coordinating energy operations. The entire program risks failure should the energy coordinator depart or has to dedicate time to other products. Additionally, branch managers and loan officers must be appropriately motivated and given appropriate incentive to promote energy products when faced with the opportunity to push less time- and technology-intensive products.

5.3 OBSTACLES AND EXTERNAL BARRIERS

Obstacles

The MFIs participating in this study face a wide range of barriers in implementing energy-lending activities, including supply chain and infrastructure constraints, knowledge gaps, and a somewhat unenabling policy environment.

High cost of modern energy technologies. Even with access to credit to bring down the initial cash outlay, the growth in use of modern energy systems is constrained by high initial costs, compared to traditional energy products. It

should be noted that this is not because modern energy systems are more expensive in the long run, or that people have an unfavorable attitude towards them, but that few will legitimize the up-front cost (even with a one-year loan) over the small, daily expenditures people are accustomed to for traditional energy sources like kerosene, fuelwood, and charcoal. This attitude is a much larger constraint in rural areas where energy sources—particularly fuelwood for cooking—are available for “free” or for a relatively small daily cash outlay. Although energy companies for LPG have tried to provide different cylinder sizes at lower prices, clients interviewed for this study expressed a need for further reduction in prices. Both MFIs agreed to the assessment that such high costs are a result of the capital intensive characteristic of modern energy systems, such as solar, and the many transportation and transaction costs which are incurred during the process of purchase, delivery, and servicing of renewable energy systems.

Geographic distribution of energy companies. As mentioned in the detailed analysis of each MFI’s energy-lending program, the limited geographic distribution of energy companies in Kenya is one of the largest obstacles preventing greater use and acquisition of modern energy products. Most energy companies are located in urban centers with their high population densities and wealthier population segments, and have very few agents and trained technicians working in poorer rural areas where the population is more widely scattered. This constraint forces both Faulu Kenya and KUSCCO to focus on marketing the energy products, particularly solar and biogas products, in major urban and peri-urban areas. The price of purchasing, installing, and servicing modern energy systems increases proportionately the farther a client’s home or business is from urban centers. This price increase is particularly prevalent in the solar market, because the existing supply chain is quite complex with several layers of players each with multiple mark-ups and transaction costs. Access to LPG is similarly constrained to the distribution of fuel stations and other suppliers that tend to be located in urban areas and along major roadways. The market penetration of biogas digesters is even more constrained than solar and LPG, with only six registered promoters in the country—five of which are located in Nairobi only—and relatively few trained technicians working outside of urban areas. Although there is much room for both Faulu Kenya and KUSCCO’s energy-lending products to grow, these programs may reach a plateau in the next few years if the energy company distribution issues are not addressed.

Low level of technical knowledge among MFI staff. The promotion of modern energy systems requires technical knowledge on the part of the loan officer. Ideally, all branch managers and field staff should be trained on the basic technical skills necessary to effectively communicate the benefits of modern energy, costs of various energy systems, and proper equipment operation. As demonstrated through the field research conducted for this study, clients would like to be able to obtain loans, energy equipment, accessories, and advice on the use and maintenance of such equipment in one place. From the perspective of clients, the lack of these “one-stop energy shops” is a major weakness in the service delivery models of both Kenyan MFIs. Both Faulu Kenya and KUSCCO have to rely on the technical capacity of energy service suppliers (the special energy unit of KUSCCO) located in Nairobi. The low technical capacity of MFIs lengthens the amount of time it takes to verify system price quotes and understand and address client technical concerns.

Limited business motivation in energy lending. In addition to significant technical knowledge requirements, energy loan portfolios grow slowly because loan officers have little incentive to promote products that may not directly improve the income-generating ability of their clients. Some loan officers in the field indicated that the amount of work involved in learning the technology and building awareness among clients does not necessarily yield visible profits when compared to the ease with which the same officer could market non-energy products. This is a weakness in the design of both lending models and is somewhat connected to the lack of energy-data collection as well as monitoring and evaluation and promotion.

Poor understanding of energy costs, benefits, and options among clients and MFI. On the MFI side, energy needs to be seen as a driver for the success of small and medium enterprises. At present, MFIs see energy lending as a way to “satisfy customer desires” or to mitigate the risk to their core business lending products. Improving the affordability, efficiency, and potential of a business’ energy inputs can greatly improve the income-generating potential of that very business. For example, lighting from a solar-powered lantern can extend the hours available for business and draw

attention to the goods being sold by a street vendor. On the client side, there is a need to communicate the negative impacts of traditional energy sources as well as the potential benefits of switching to cleaner, more efficient energy technologies. Additionally, there is a need to clearly raise awareness on the affordability and applicability of modern energy technologies. At present, many rural Kenyans believe LPG, solar, and biogas are “only for the wealthy,” while firewood and kerosene are “for the poor.” This misperception must be addressed in a manner that respects the cultural significance of traditional energy uses, particularly cooking methods. Efforts to scale-up lending for modern energy systems must also avoid the tendency to cut and paste the many comforts of urban dwellers provided by grid electricity to rural off-grid communities that will have different options available to them. Finally, the perceived “need” for modern energy services (largely based on statistics that cite the number of households relying on traditional biomass) has to be transformed into real demand through aggressive and coordinated awareness raising, product marketing and training that has yet to happen on a major scale in Kenya.

In-country energy policy obstacles. Although government support is very important to encouraging the private sector to engage in the development and use of modern energy technologies, the microfinance community has yet to realize this support or benefit from related provisions. In fact, the value-added tax on some imported modern energy equipment (e.g., solar batteries and accessories) drives the already high cost of the technologies out of the range of an MFI’s client base. Government support for energy interventions is largely focused on grid-based electricity supplies, making it all the more difficult to promote small, household, and SME-based renewable energy systems. There is a need for the governments of East Africa to review the policies that thwart increased use of small-scale energy technologies and reform financial sector regulation reform and support public-private financing partnerships that support microfinance mechanisms.

Lack of energy data as part of MFI performance monitoring. At present, both Faulu Kenya and KUSCCO track energy-lending activities under the umbrella of either consumer or business loans. For example, Faulu Kenya’s financial statements show general amounts for administration and operating expenses for broad loan categories, but do not allow management staff to drill down into details of the specific costs associated with energy products. Lack of energy-specific data not only hinders effective tracking of energy products but can prevent the MFI from identifying bottlenecks in service delivery that could affect product profitability. For example, some of the SACCOs participating in KUSCCO’s energy-lending program recognized that the service delivery process could be excessively long, leading to customer dissatisfaction and client diversion to other competitors. The administrative bottlenecks causing this lengthy service delivery are difficult to identify without properly designed data management systems and clear communication channels between the client, SACCO, KUSCCO, and energy companies. Sustainable growth of energy-lending operations in both MFIs can only be achieved when management understands the cost of administering energy loans, tracks trends in energy-specific data, and traces the changes in energy product growth over time.

Equipment standardization. The non-standardization of energy equipment, LPG equipment in particular, is a key obstacle to scaling up energy-lending activities in Kenya. For example, there is no existing standard for LPG valves and gas regulators, often making it difficult for consumers to refill gas cylinders from any available vendor. At the time of this study, the government of Kenya was studying how to standardize LPG cylinders, gas regulators, and valves in order to ensure greater flexibility for consumers and companies. An appropriate legal and regulatory framework was also being worked on to enforce such standardization. Such regulations will be made part of the Petroleum Bill that was discussed by Parliament in 2006. This research found out that although energy suppliers feel they may lose in complying with standardization regulations for LPG, both KUSCCO and Faulu think it is good for business to build an environment conducive to the effective operation of energy loans.

Risk management. Both MFIs indicated that management of risks can be a barrier to large-scale growth of energy products. As with other loan products, sustainability of energy loan payments by the client is a key factor that MFIs pay attention to. At this time, most energy products are being marketed to clients with regular incomes. Targeting these individuals gives the MFI some assurance that they can recover loans through salary-deduction systems and having employer and/or household addresses as a reference point. From the MFI perspective, this approach minimiz-

es risk of default and can ensure high performance of the energy portfolio. However, this approach tends to result in growth of energy products for purely consumptive uses and ignores the huge potential market for productive energy services. The potential market being missed by the MFIs is largely agriculture-based and/or informal. This population segment has little or no measurable formal income, but demonstrates tremendous potential for increasing income-generating potential from improved access to modern energy services, compared to existing energy clients who tend to utilize energy products for consumptive purposes only. Both MFIs have made some effort to encourage the use of energy systems for income generating purposes, but indicated difficulties in managing the high risks associated with serving clients without regular incomes. Energy lending can only reach its full potential when MFIs both understand the income-generating possibilities of modern energy services and market energy products to populations without regular income in a way that produces acceptable risk levels.

External Barriers

Within the context of East Africa, there are several obstacles the microfinance and small-scale energy business sectors cannot be reasonably expected to address themselves in the near term. These obstacles include limited infrastructure, regulatory framework constraints, and the availability of energy technology options. The following issues are essential to energy lending reaching its full potential in the region.

Energy policy reform. There is a need to create a pro-poor regulatory framework that promotes renewable energy technologies by improving access to microfinance. At present, there are many policies and regulations that drive up the cost of renewable energy technologies faced by MFI clients. These include high interest rates on business loans for private energy businesses, high taxes on energy imports, equipment standards that limit customer base, and difficulties mobilizing client and donor support for establishing an MFI's energy-lending operations. Additionally, most East African governments tend to focus on rural electrification as a means to meet the energy needs of unserved and underserved populations, making it all the more difficult to draw attention to the policy reform necessary to promote small-scale renewable energy products. Luckily, there are major players addressing these energy access policy and regulatory issues including the European Union, United Nations Development Programme, the World Bank, and the East African Community Secretariat. Scale-up of energy-lending activities should be coordinated with other energy access activities in the region.

Energy product distribution infrastructure. Energy-lending activities in Kenya are currently constrained by the limited geographic distribution of energy companies. There is an obvious need for outside support in developing a network of reliable peri-urban and rural energy entrepreneurs, distributors, and one-stop energy shops. Additionally, there is a need to develop clear distribution channels that enable energy products to reach rural markets without significant time delays, transaction costs, and mark-ups. This external support could come in the form of rural energy entrepreneur loan funds, business development and marketing support for existing entrepreneurs, investment in the establishment of rural distribution centers, and financial support for expansion and franchising of energy businesses into rural areas.

Donor community engagement. There is an obvious need for donor involvement in addressing the broader energy access infrastructure and policy obstacles explained above. However, the most direct means by which donors can assist in promoting energy-lending activities in East Africa is by funding activities that help bridge the knowledge gap between the microfinance and energy sectors. These activities could include holding multi-sectoral workshops and trainings, funding the production of an energy-microfinance toolkit and web-based knowledge dissemination tools, and supporting MFIs and energy companies in conducting initial market research before establishing energy-lending programs.

5.4 OPPORTUNITIES

There is tremendous opportunity for scaling up energy-lending operations in East Africa due to the size of unserved and underserved populations and a general lack of competition in financing small-scale renewable energy technologies.

Potential market for energy services and products is large. At present, only 4 percent of Kenya's total rural population has access to the electricity grid and even fewer (2 percent) have access to photovoltaic technologies in off-grid areas. At projected grid-extension growth rates, most of the 5.5 million rural households currently off grid will continue to be unserved by grid electrification for the next ten years. The lack of access to grid electricity clearly indicates a need for non-grid electrification sources in rural areas such as photovoltaic. In large informal urban settlements, such as Nairobi's Kibera slums, there is also a need to provide innovative financing schemes for grid distribution, connection, and electricity consumption. The potential penetration of modern energy for cooking purposes is even higher, as over 97 percent of domestic energy for cooking in households is currently supplied by biomass sources. With only 0.2 percent market penetration, there is tremendous potential for scaling up access to LPG as an alternative cooking fuel. Finally, Kenya's emerging dairy industry presents MFIs and energy companies with a largely untapped market for biogas for cooking and lighting purposes.

MFIs are the only entities offering loans for small-scale energy. Although seen as a major weakness from the perspective of clients, the fact that MFIs are the only institutions currently offering flexible financing mechanisms for the purchase of energy products is a major opportunity for both Faulu Kenya and KUSCCO to expand their energy-lending portfolios. Large-scale Kenyan banks have an advantage with their wide distribution networks. However, they have not been able to mainstream modern energy products in their portfolio because most view renewable energy technology as consumer products rather than business and income-generating ventures. As such, most consumers must rely on MFIs to finance modern energy systems. Additionally, energy entrepreneurs indicated that lack of affordable financing from local banks is a major barrier preventing business expansion and increased availability of a larger variety of energy equipment and services. As the only source of financing for both energy clients and small-scale energy entrepreneurs, MFIs can play a major role in scaling up access to modern energy through business loans for the establishment and operation of rural energy businesses and end-user loans for the purchase of energy technologies and services.

5.5 RECOMMENDATIONS FOR REGIONAL REPLICATION AND SCALE-UP OF ENERGY LENDING

There are several areas in which interventions could improve the scale-up potential of Faulu Kenya and KUSCCO's energy-lending programs and set the stage for replication in other regional MFIs. These intervention areas include product documentation, establishment of standards, developing a critical mass of installation/maintenance technicians, knowledge management and awareness creation.

Improve knowledge dissemination and learn from best practices in energy lending. MFIs should be able to refer to documented examples of institutions that have successfully financed energy systems in Africa and world wide. Such examples should have information on how to deal with needs of women, where they are different from men's, and how to handle problem areas in energy lending. There is an opportunity to share the experiences of Faulu Kenya and KUSCCO with related subsidiaries and similar regional umbrella organizations regionally and globally. The Faulu Africa Network consists of microfinance operations in Kenya, Uganda, and Tanzania. Food for the Hungry International, the parent NGO of Faulu, should plan to replicate energy-lending operations in their Tanzania and Uganda operations and consider replication in Asia. Although faced with different policy environments in Tanzania and Uganda, the lessons learned from Faulu Kenya can prove invaluable in establishing and appropriately scaling up energy-lending operations in other East African countries with existing Faulu operations. There is an opportunity to share the lessons learned by KUSCCO with similar SACCO umbrella organizations, including the Savings and Credit Union League of Tanzania (SCCULT), the Association of Microfinance Institutions of Uganda (AMFIU), and the World Council of Credit Unions (WOCCU). The dissemination of lessons learned from Faulu Kenya and KUSCCO's energy-lending programs to the wider energy and microfinance communities can also spark replication in other regional MFIs.

Diversify technology and loan product options. There is an opportunity for MFIs and participating service companies to expand energy lending even further by offering loans for energy services not already covered by the limited modern energy portfolios of Faulu Kenya and KUSCCO:

- *Loans to establish and expand energy businesses:* As mentioned previously, access to affordable finance from local banks is a major obstacle preventing the establishment and expansion of energy businesses in peri-urban and rural areas. Additionally, the limited geographic distribution of existing energy businesses is a major obstacle preventing the scale up of energy-lending operations. If designed appropriately, loans to establish energy businesses can not only add a profitable category to existing business loan portfolios but also help extend the reach of other energy loan products offered by the MFI. In partnership with existing energy partners and other energy stakeholders, MFIs can design energy business loan products that offer entrepreneurs access to capital, technical training, and business development needs.
- *Cross-sell energy with core products:* There are business opportunities for MFIs to cross-sell renewable energy support products with their core products, such as business and home construction or improvement loans. For micro-enterprises, improved energy products should be marketed as an additional opportunity to cut costs and improve efficiency of business operations. For households, there is an opportunity to cross-market solar as a source of electricity in off-grid areas and as power back-up in urban areas. Additionally, MFIs can market LPG as a component of home improvement loans that may include additions or modifications to household kitchens. Finally, there is an opportunity for MFIs to cross-sell energy with telecommunication products. MFIs have played a major role in improving the penetration of village phone products over the last decade. Most major East African mobile phone companies are keen to expand into the rural areas but are constrained by a lack of mobile phone-charging centers. MFIs could cross-sell energy products (such as solar systems for rural cell phone and battery charging stations) with telecommunication companies.
- *Market energy products for commercial purposes:* This study found that neither MFI pay enough attention to the possible income-generating activities that can come from energy products. For example, Faulu Kenya should recognize solar as a potential means to improve its clients' income potentials through a solar-based charging business, hair salon, or as a way to simply extend business hours into the night through efficient lighting. This study also found that MFIs are ignoring the energy demand largely for productive uses, of the Jua Kali (small and medium enterprise) sub-sector mainly due to a lack of "regular income." Representing a large component of Kenya's productive economy, the Jua Kali sub-sector depends on energy to power welding machinery, battery chargers, sewing machines, band saws, boilers and hatcheries, and other electric machinery. The sub-sector currently relies on inverters, fuelwood and charcoal, and diesel and petrol to fuel these many energy-intensive activities. There is an obvious market for energy loan products within the Jua Kali sub-sector that can have direct impacts on income generating potential.
- *Loans for grid connection:* There are few-to-no financing options for the high cost of grid-connection fees in urban and peri-urban areas of Kenya. This is an opportunity for MFIs to both improve access to modern energy and expand their client bases through innovative loans for connection to the electricity grid. MFIs should work with conventional utility businesses to address this customer service gap and design the product delivery methodology. There is also an opportunity for MFIs and utilities to take a leadership role in developing innovative methods to servicing the electrification needs of poor informal urban settlements, such as Kibera in Nairobi.

Address knowledge gaps and improve communication and coordination between the energy and microfinance sectors. This study found that the expansion of energy access through microfinance loans is largely hindered by a lack of coordination and poor communication between the energy and microfinance sectors. First, many energy companies indicate that they will only serve rural areas if they can be sure there is an effective demand for energy products and

an ability to pay for such services (via cash or credit). On the other hand, many MFIs are unwilling to penetrate these same areas unless there is an energy company willing to serve the communities and establish rural operations. This indicates an obvious need for better coordination between the two sectors in penetrating rural areas. This coordination should also include paths for continuous awareness creation and feedback among all stakeholders, including clients, and ways to monitor communication channels so feedback is not neglected after the first few months of establishing energy lending. Better communication and coordination with existing energy partners can improve the ability of MFI staff to respond to client knowledge needs, ensure proper understanding of technologies on the part of the client, and help reduce monitoring and repair costs. Finally, there is a need for knowledge dissemination between the larger microfinance and energy sector players to build an understanding of the emerging field.

Improve documentation and pay attention to costs of administering energy loans. MFIs should formulate and track information that shows performance of the energy loan over time, how energy loans have been accessed, types and volumes of energy technologies disseminated and sold, and number of clients who have purchased energy technologies. The MFI should evaluate the profitability of energy loans in comparison with other products in order to analyze the overhead costs as well as the extent to which it makes a business case to offer such products. Energy products should be tracked and evaluated in the same manner as any other core business product of the MFI, rather than the current practice of tracking energy in the same category as general consumer loans. There is also need to improve external energy technology documentation, such as end-user guides, in order to provide information on the many benefits and potential uses and limitations associated with each technology. For example, potential solar clients need to understand its limitations as a source of energy for welding and other energy-intensive productive uses. End users also expressed a desire for documentation outlining the full range of income generating opportunities for each energy option prior to taking up a loan with the participating MFI.

Streamline service delivery process to cut down on lead time. With improved documentation and data management systems, MFIs will be able to better identify and understand the source of service bottlenecks. MFIs should pay special attention to the timeliness of the provision of energy services and try to minimize administrative hurdles that lengthen the time taken to deliver energy products. Among other things, these improvements could include reducing the number of hierarchical levels involved in processing individual loan applications and holding a small inventory of energy products (such as LPG refills) in the local SACCO office for easier disbursement.

BIBLIOGRAPHY

- AFREPREN/FWD (Energy, Environment, and Development Network for Africa, Nairobi, Kenya). 2003. *African Energy Data and Terminology Handbook: Year 2003–2004 Edition*. Occasional Paper No. 23. Edited by Stephen Karekezi, John Kimani, Lugard Majoro, and Waeni Kithyoma. Nairobi, Kenya: AFREPREN. <http://www.afrepren.org/Pubs/occasi~1.htm>. Accessed July 1, 2007.
- Bacon, Roger, and Masami Kojima. 2006. “Coping with Higher Oil Prices.” Energy Sector Management Assistance Programme (ESMAP). Washington, DC: World Bank. [http://wbln0018.worldbank.org/esmap/site.nsf/files/323-06+Higher+Oil+Prices_For_Web.pdf/\\$FILE/323-06+Higher+Oil+Prices_For_Web.pdf](http://wbln0018.worldbank.org/esmap/site.nsf/files/323-06+Higher+Oil+Prices_For_Web.pdf/$FILE/323-06+Higher+Oil+Prices_For_Web.pdf). Accessed July 1, 2007.
- East African Community Secretariat. 2006. “East African Community Development Strategy: 2006–2010.” Arusha, Tanzania: EAC.
- . 2005. “Development Strategy.” Arusha, Tanzania: EAC.
- . 2001. “The Second EAC Development Strategy, 2001–2005.” Arusha, Tanzania: EAC. http://www.issaf-rica.org/af/RegOrg/unity_to_union/pdfs/eac/devstrat.pdf. Accessed July 1, 2007.
- Faulu Kenya. <http://www.faulukenya.com>. Accessed July 1, 2007.
- . 2006. Internal data, interview with Henry Mwaniki, Data analyst, Development Finance Unit
- Intermediate Technology Development Group—Eastern Africa. 2005. “Report of the Kenya Sector Energy Needs Assessment Workshop.” Presented at a workshop convened by Intermediate Technology Development Group, Nairobi, Kenya, December 9–10, 2004. <http://www.ke.undp.org/GVEP-DECreport.pdf>. Accessed July 1, 2007.
- Kamfor Ltd. 2002. “Study on Kenya’s Energy Demand, Supply, and Policy Strategies for Households, Small-Scale Industries, and Service Establishments.” Final report to Kenya Ministry of Energy. Nairobi, Kenya: Kamfor Ltd.
- KUSCCO. 2006. “Annual Report and Accounts, 2005–2006.” Nairobi, Kenya: KUSCCO.
- . 2005. “Essential Features of the SACCO Regulatory Bill—KUSCCO.” Paper prepared in support of an improved regulatory environment. Nairobi, Kenya: KUSCCO.
- . 2000-2004. “Annual Reports.” Nairobi, Kenya: KUSCCO.
- Modi, Vijay. 2005. “Energy Services for the Poor.” Paper commissioned for the UN Millennium Project Geneva: UNDP, Millennium Project Task Force.
- , Susan McDade, Dominique Lallement, and Jamal Saghir. 2006. *Energy Services for the Millennium Development Goals*. New York: Energy Sector Management Assistance Programme, United Nations Development Program, UN Millennium Project, and World Bank. http://www.unmillenniumproject.org/documents/MP_Energy_Low_Res.pdf. Accessed July 1, 2007.

- Olende, S. Arungu, and Benard Osawa. 2006. "Energy Road Map to Achieving MDG Targets: Kenya Sectoral Energy Requirements, Final Report." Nairobi, Kenya: GVEP Kenya. <http://mirror.undp.org/kenya/GVEPKenyaEnergyRoadmap.pdf>. Accessed July 1, 2007.
- Republic of Kenya. 2001. "9th National Development Plan, 2002–2008." Nairobi, Kenya: Government of Kenya.
- Research and Analysis Technical Working Group, MKUKUTA (National Strategy for Growth and Reduction of Poverty) Monitoring System. 2005. "Tanzania Poverty and Human Development Report 2005." Report prepared on behalf of the Government of Tanzania. Dar es Salaam: Mkuki na Nyota. http://origin-hdr.undp.org/reports/detail_reports.cfm?view=1088. Accessed July 1, 2007.
- United Nations, Economic and Social Development. 2002. "Microfinance in Africa: Combining the Best Practices of Traditional and Modern Microfinance Approaches towards Poverty Eradication." CITY: United Nations Economic and Social Development. <http://www.un.org/esa/africa/microfinanceinafrica.pdf>
- UNDP (United Nations Development Programme). 2005. *International Cooperation at a Crossroads: Air, Trade, and Security in an Unequal World, UNDP Human Development Report, 2005*. New York: UNDP.
- . 2005. *4th National Human Development Poverty Report for Kenya: Linking Industrialisation with Human Development*. Nairobi, Kenya: UNDP. http://hdr.undp.org/docs/reports/national/KEN_Kenya/Kenya_2005_en.pdf. Accessed July 1, 2007.
- . 2005. *Uganda Human Development Report, 2005: Linking Environment to Human Development—A Deliberate Choice*. Kampala, Uganda: UNDP. http://origin-hdr.undp.org/reports/view_reports.cfm?year=2005&country=0®ion=2&type=0&theme=0&launched=0&start=11. Accessed July 1, 2007.
- WHO (World Health Organization). 2005. "World Health Statistics, 2005." Geneva: WHO.
- World Bank. 2005. *African Development Indicators, 2005*. Washington, DC: World Bank. http://www4.worldbank.org/afr/stats/adi2005/adi05_booklet_rev_061505.pdf. Accessed July 1, 2007.
- . 2004. *World Development Indicators 2004*. Washington, DC: World Bank.