SOLAR LOANS THROUGH A PARTNERSHIP APPROACH: lessons from Africa

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Masai women discovering solar solutions during a demonstration session, Kenya - Source: PAMIGA

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PAMIGA (Participatory Microfinance Group for Africa) is an international NGO that aims to unlock the economic potential in Africa by promoting the growth of financial institutions that serve rural areas. It provides technical assistance to a network of 16 RFIs in sub-Saharan Africa.

KEYWORDS

- SOLAR ENERGY
- ACCESS TO ENERGY
- MICROFINANCE
- TWO-HAND MODEL
- RURAL SUB-SAHARAN AFRICA

Lack of financial resources is a key barrier to access to energy in rural Africa. Since 2013, PAMIGA has been assisting rural financial institutions in developing Solar Loans to overcome this barrier. The approach chosen was that of a "two-hand" model, where a financial institution and a solar solution provider decide to partner. This article presents the rationale and features of the model, its first results, and the key challenges and lessons learned from its implementation in Cameroon, Ethiopia and Kenya.

INTRODUCTION

In the recent years, great technological progress has been made, resulting in the design of solar solutions better adapted to the Bottom of the Pyramid (BOP), as well as in a decrease in the prices of solar product components. To make these technologies available to low-income rural populations on a sustainable basis, a variety of business models are currently being tested.

Since 2013, the Participatory Microfinance Group for Africa (PAMIGA), an international NGO providing technical assistance to a network of 16 rural financial institutions (RFIs) in sub-Saharan Africa, started to work with its member RFIs to develop financial products to facilitate access to quality pico-solar solutions for their vulnerable rural clients. The approach chosen was that of a "two-hand" model, where a financial institution and a solar solution provider (or several) decide to partner. This article first introduces the reasons that led PAMIGA and its partners to opt for a two-hand model. The methodology of implementation of the model and its first results are then presented. Finally, the article analyses the key challenges and lessons learned from implementation in Cameroon, Ethiopia and Kenya, among which emerged the necessity to develop networks of village-based "Energy Entrepreneurs" to reach the last mile more efficiently (the Energy Entrepreneur model is presented in more details in the following article Allet (2016), "Energy Entrepreneurs: an innovative model to reach the last mile").

1. WHY A TWO-HAND MODEL?

1.1. UNMET ENERGY NEEDS IN RURAL AREAS

The rural financial institutions that are members of PAMIGA's network offer credit and savings services to low income populations in sub-Saharan Africa. They mainly operate in rural areas, where access to electricity is still extremely limited. During field visits to rural areas, PAMIGA and its partner RFIs realized that rural poor populations were asking for their assistance to have access to clean energy solutions. To get a better understanding of rural microfinance clients' situation, PAMIGA and its partner RFIs conducted specific quantitative and qualitative needs assessments in Cameroon, Ethiopia and Kenya (between 2013 and 2015). Quantitative surveys were conducted with a sample of rural households. Since the RFIs first wanted to answer the needs of their clients, interviewed households were randomly selected in the areas of intervention of the institutions (generally focusing on 4 to 8 rural branches), mostly among existing clients (although a few non-clients were also interviewed). The quantitative surveys were completed with qualitative focus groups for a better comprehension of perceptions and expectations of rural poor populations. These needs assessments confirmed the high demand among RFIs' clients for improved access to energy, as illustrated in Table 1.

Table 1. Key findings of PAMIGA's energy needs assessments

	Cameroon	Ethiopia	Kenya
Nb of surveyed microfinance clients	86	152	110
Respondents NOT connected to the grid	82%	99%	88%
Respondents using kerosene lamps	84%	92%	79%
Respondents using torch lamps / flashlights	48%	88%	68%
Average monthly energy expenditures	€ 24	€ 12	€ 65
Percentage of average monthly energy expenditures out of household budget	10%	11%	15%
Respondents NOT satisfied with their current access to electricity	100%	100%	93%
Respondents interested in a solar solution	96%	97%	100%

The needs assessments furthermore showed that these vulnerable rural populations are aware of the existence of solar solutions and broadly perceive them as an adequate option for them. However, some key barriers remain: (a) the lack of accessibility to these solutions, as providers are often not present in rural areas; (b) the lack of information to select reliable solutions; (c) the lack of financing options for such investments.

Confronted to this unmet demand from their clients, the RFIs within PAMIGA's network believed that they could play a role to facilitate access to solar solutions. As it was a new area for them, they requested technical assistance from PAMIGA.

1.2. DRIVERS FOR RURAL FINANCIAL INSTITUTIONS' INVOLVEMENT

RFIs are often perceived as being in a good position to address some of the key barriers to access to clean energy. As mentioned by Levai et al. (2011), RFIs can have the advantages of: (a) having a wide outreach in rural areas, often more than any other distribution channel; (b) holding a position of trust with local households; and (c) offering access to adapted financial services to facilitate the purchase of new technologies.

For PAMIGA's partner RFIs, a first motive to get involved was that of fulfilling their social mission: by facilitating access to solar solutions, they could contribute to improve the living conditions of their clients and foster local economic development (Allet, 2014; Levai et al., 2011). These RFIs also decided to get involved in energy lending because they expected some strategic and financial benefits for themselves, such as differentiating from competitors, attracting new clients, retaining existing ones, diversifying their offer and portfolio, building a positive image as a socially and environmentally responsible institution, and attracting new sources of funding (similar to findings from Allderdice & Rogers, 2000; Allet, 2014; Levai et al., 2011).

1.3. HAVING SPECIFIC SOLAR PARTNERS OR NOT?

The core business of RFIs is to offer financial services (savings and credit). Following a "free market" approach (Groh & Taylor, forthcoming), RFIs could decide to just provide a loan and let clients find and purchase the energy solution they want. This is an approach that is more common in areas where the market of clean energy solutions is already well developed (for instance energy efficient devices in urban areas of Latin America). However, in rural areas of sub-Saharan countries, the supply chain for solar solutions is still limited. If RFIs were just to offer loans, they would help overcome the financial barrier to investment, but not the barriers linked to lack of information and lack of accessibility of solar solutions in rural areas.

Focus group discussions, conducted by PAMIGA with rural microfinance clients in Cameroon, Ethiopia, and Kenya, have revealed that rural households are worried about low quality solar solutions. As they trust their RFI, many of them actually prefer to get advice and guidance on which solar solution to choose. Even more surprisingly, in Ethiopia, microfinance clients who would have the capacity to purchase a small solar kit in cash, from their revenues or savings, clearly stated that they prefer taking a loan (and thus paying a bit more) in order to benefit from different services offered through the RFI, such as delivery of the kit at rural branch level and warranty for at least the duration of the loan.

Provided their context of intervention, PAMIGA's partner RFIs thus decided to opt for a "two-hand" approach, where they set partnerships with selected providers of solar solutions. The advantage of this approach is that, through such partnerships, RFIs are able to make quality solutions accessible to target clients in rural areas. Furthermore, they can control the use of the loan by disbursing the money directly to the selected partner, for the selected quality solution, and therefore mitigate credit risk linked to equipment breakdown. However, the two-hand model also implies a key constraint for RFIs: clients are likely to hold them directly responsible in case of problem with the technology since they will consider that the latter was promoted by the RFI, and they may stop repaying their loans. When opting for a two-hand approach, RFIs thus have to make a rigorous selection of solutions and partners to truly mitigate the reputation and credit risks (Morris et al., 2007).

2. THE TWO-HAND MODEL TESTED BY PAMIGA

Since 2013, PAMIGA has been testing this two-hand model of partnerships between RFIs and solar solution providers in three countries (Cameroon, Ethiopia, Kenya) with a total of six RFIs (A3C, ICS and UCCGN in Cameroon; Buusaa Gonofaa and Wasasa in Ethiopia; WPS in Kenya). Building on lessons learned from similar initiatives worldwide, PAMIGA has been applying a clear methodology, presented in the following sections.

2.1. SELECTION OF SOLAR SOLUTIONS AND PARTNERS

The energy and financial needs assessments, which had been conducted by PAMIGA and partner RFIs in a first step, were instrumental in identifying the types of solar solutions that would fit the needs and expectations of target microfinance clients. Building on these results, PAMIGA provided support in screening the offer of solar solutions and selecting quality technologies and reliable providers who were interested in starting contractual partnerships with a RFI.

For that purpose, PAMIGA has defined a list of criteria for pre-selecting adequate solar solutions and providers. For instance, solar solutions were evaluated along their capacities (what can they supply? does it fit the needs of various segments?), lifespan, quality of components (type of battery and solar panel, etc.), certification by Lighting Global and/or other relevant authority, easiness to use, warranty conditions, availability of spare parts, possibility to upgrade, and price. As for solar solution providers, they were evaluated along their local market presence, offer of adequate solar solutions, reputation, experience in and willingness to explore the Base of the Pyramid market and work in rural areas, capacity to import and manage a local stock, capacity to deliver the solutions to rural areas, capacity to provide efficient after-sales services and collect used material, willingness to partner with a RFI and provide training to the RFI staff, etc. (in line with recommendations formulated by Levai et al., 2011; Winiecki et al., 2008).

PAMIGA then organized a first workshop where the RFIs and pre-selected providers could meet. During these workshops, each actor would present its organization, activities, and motivation for engaging in such partnerships. The pre-selected providers would make a demonstration of their solar solutions and explain their services. Such workshops are crucial because, beyond a technical screening process, the success of a two-hand model lies in the capacity of partners to collaborate. It is thus critical that the RFI and solar solution provider have a good "feeling" about their capacity to communicate and work together. The decision was thus left to the partner RFIs and pre-selected providers, after a first meeting, to decide whether they wanted to pursue discussions and enter into partnerships.

Within this selection process, PAMIGA promoted a progressive approach, advising RFIs to first start with a limited number of solar solution partners (one or two), in order to test the new model and make it easier for loan officers to integrate the new financial product. Then, after a successful pilot phase, RFIs could decide to integrate additional partner providers in order to diversify the range of solar solutions proposed to clients. As part of this progressive strategy, most RFIs decided to start with solar lanterns for basic lighting and mobile phone charging needs, as "quick-win" entry products. Then, as the model and partnerships were strengthened, they progressively started to move towards larger solar home systems, for both domestic and productive use.

Following this approach, the three RFIs in Cameroon (A3C, ICS and UCCGN) first started a partnership with a local distributor in 2013 and integrated a second partner provider in 2015. In Ethiopia, both RFIs (Buusaa Gonofaa and Wasasa) also started with a single provider in 2013; in 2015, Wasasa decided to integrate two additional partners. In Kenya, WPS started partnering with a distributor in 2014, and then integrated a second partner for larger solar solutions in 2015.

2.2. DISTRIBUTION OF ROLES AND RESPONSIBILITIES BETWEEN PARTNERS

Lessons learned from field experiences always emphasize the importance of defining a clear distribution of roles and responsibilities between partners in such two-hand models (Levai et al., 2011; Morris et al., 2007; Rippey, 2009; Winiecki et al., 2008). In this model, the general idea is that each actor brings its respective competences and collaborates to jointly overcome the main barriers to access to clean energy: lack of available solutions, lack of information, and lack of financial resources to invest in a clean energy solution. On the one hand, the solar solution provider offers quality technologies, together with crucial customer services such as delivery, installation, customer education, warranty and after-sales services. On the other hand, the RFI gives access to its client base and offers financial services to facilitate investment in the solar solution. However, in each case, the

Figure 1. Solar solutions selected by partner RFIs

CAMEROON

Mobiya (Schneider Electric)
2.5 Wp solar kit
1 lamp
+ mobile phone charging
FCFA 22,800

MB2-200 (Omnivoltaic)
2.5 Wp solar kit
1 lamp + 1 torch
+ mobile phone charging
FCFA 37,850

MB2-380 (Omnivoltaic)
5 Wp solar kit
3 lamps + 1 torch
+ mobile phone charging
FCFA 92,800

ETHIOPIA

Mobiya (Schneider Electric)
2.5 Wp solar kit
1 lamp
+ mobile phone charging
ETB 1,262

S300 (d.light)
1.5 Wp solar kit
1 lamp
+ mobile phone charging
ETB 880

D20 (d.light)
5.5 Wp solar kit
2 lamps + 1 torch
+ mobile phone charging
ETB 2,300

Home 200 X2 (NIWA)
5 Wp solar kit (upgradable)
2 lamps
+ mobile phone charging
ETB 2,519

Home 300 X3 (NIWA)
5 Wp solar kit (upgradable)
3 lamps
+ mobile phone charging
ETB 3,261

Home 400 X3 (NIWA)
5 Wp solar kit (upgradable)
4 lamps
+ mobile phone charging
ETB 3,261

KENYA

SunKing Mobile (Greenlight Planet)
1.5 Wp solar kit
1 lamp + mobile phone charging
KES 2,350

SunKing Pro2 (Greenlight Planet)
3.3 Wp solar kit
1 lamp + mobile phone charging
KES 3,150

Solectric 15 (Orb Energy)
5 Wp solar kit
2 lamps
+ mobile phone charging
KES 8,990

Solectric 30 (Orb Energy)
10 Wp solar kit
4 lamps + mobile phone charging / radio playing
KES 14,990

Solectric 120 (Orb Energy)
40 Wp solar kit
4 lamps + TV (included) + mobile phone charging / radio playing
KES 59,990

exact demarcation of roles can slightly differ, in order to find the most efficient model according to the capacities and expectations of each partner, as well as their context of intervention. For instance, in some contexts, the RFI may be willing to take over the responsibility of delivering the solar solutions from their branches to end-customers; while in other contexts this task will be performed by technicians contracted by the solar solution provider.

To help partners define a balanced and optimal distribution of roles, PAMIGA organized additional participatory workshops where RFIs and solar solution distributors could discuss the terms of partnerships (respective roles and responsibilities of each party, procedures to be followed during implementation). The workshops also had the objective to make sure that each partner has a clear understanding of each other's constraints and responsibilities. This process then resulted in the signing of Memorandums of Understanding (specifying the respective roles and responsibilities of each partner, as well as cost-sharing aspects for joint activities) and the development of detailed Memos of Procedures.

Table 2. Typical distribution of tasks in PAMIGA's two-hand model (some variations exist from partner to partner)

	RFI	Solar solution provider
Promotion	JOINT RESPONSIBILITY The RFI usually focuses more on promoting the financial products.	JOINT RESPONSIBILITY The provider focuses more on promoting the solar kits.
Loan application/appraisal /approval	EXCLUSIVE RESPONSIBILITY	
Delivery of solar kits	FACILITATION The RFI facilitates the delivery of solar kits from rural branches to end-customers.	RESPONSIBILITY The provider delivers the solar solutions to the RFI rural branches.
Installation of solar kits		RESPONSIBILITY When installation is needed
Customer education	JOINT RESPONSIBILITY	JOINT RESPONSIBILITY
Loan repayment collection	EXCLUSIVE RESPONSIBILITY	
After-sales services	FACILITATION The RFI may facilitate the contact between clients and providers.	RESPONSIBILITY

2.3. ADAPTING THE FINANCIAL PRODUCT TO THE TWO-HAND MODEL

In parallel to the setting of partnerships, the RFIs worked on developing a specific financial product dedicated to finance access to clean energy: the Solar Loan. PAMIGA provided technical assistance in this financial product design process, using a risk management approach. This methodology consists in identifying with the RFI staff the specific risks linked to energy lending and therefore identify the loan features and procedures that should be adapted in order to mitigate these risks. RFIs can thus develop a new loan product that is fully in line with their existing procedures: for instance, if they only provide group lending, the Solar Loan will also be a group loan; if they do individual lending, the Solar Loan will be an individual loan; if they have maximum loan amounts per loan cycle, the same will apply to Solar Loans, etc. Only a few specificities are defined.

For instance, in Ethiopia, partner RFIs decided to keep the same type of collaterals on the Solar Loans as for other loans (15% mandatory savings and group joint liability); but in order to reduce the credit risk specifically linked to Solar Loans (i.e. clients refusing to repay due to equipment breakdown), they decided to request a down-payment amounting to 10% of the cost of the solar solution, in order to build a better sense of ownership of the solar kit among clients (assuming it would reduce risks of misuse or bad care). In Kenya, the MFI kept the same lending methodology and possible loan duration as for other loans; but, because most clients who want to invest in a solar solution still need to have access to a loan for their business, the RFI decided to allow the provision of Solar Loans in parallel to another business loan (which is not allowed for any other type of loan). To mitigate the risks created by allowing parallel loans, the RFI then strengthened the loan appraisal process for Solar Loans and defined repayment schedules tailored to the monthly energy savings allowed by the solar kit (making sure the Solar Loan does not come as an additional burden for the household but can be repaid thanks to the energy savings).

Within such two-hand model, a key adjustment is linked to the disbursement of the loan: instead of disbursing cash to the clients, the RFIs make a direct payment to the solar solution provider, who then delivers the solar kit. The clients thus receive their Solar Loan "in-kind", under the form of the solar solution, and will still have

"EACH ACTOR BRINGS ITS RESPECTIVE COMPETENCES AND COLLABORATES TO JOINTLY OVERCOME THE MAIN BARRIERS TO ACCESS TO CLEAN ENERGY."

Table 3. Examples of Solar Loan key features

	Cameroon	Ethiopia	Kenya
Local name	Crédit Lumière	Liqaa Solaarii	Mkopo wa Sola
Lending methodology	Individual lending	Group lending	Group lending
Personal contribution / down-payment	No	10% of the total cost of the solar kit	No
Minimum loan amount	FCFA 10,000	ETB 500	KES 1,200
Maximum loan amount	FCFA 90,000	ETB 15,000	KES 60,000
Loan duration	3 to 12 months	4 to 24 months	6, 9 or 12 months
Instalment frequency	Monthly, quarterly, biannually or term	Monthly with different amounts	Monthly
Interest rate	24% flat per annum	13 to 18% flat per annum (according to loan size)	24% flat per annum
Collaterals	30% cash collateral, pledge on assets, personal guarantors	15% cash collateral, joint liability	15% cash collateral, joint liability, pledge on assets

to repay their loan as usual, with the RFI. For the RFI, it may imply adjusting internal cash flow management, since payments to partner providers are made by head office, whereas loan disbursements are often managed at branch level. It also implies some adjustments in the loan application forms and loan agreements signed with clients, and possibly in the Monitoring Information System too. Some RFIs were actually already used to such disbursement processes (for agricultural loans linked to the purchase of inputs or equipment loans for instance); for others, it was an innovation, specific to this two-hand model.

This approach of adapting only a few loan features to the specific risks of energy lending thus facilitates the integration of a new financial product within the institution, making it easier for loan officers to assimilate only a few specificities.

2.4. PREPARATORY PHASE AND KICK-OFF

During the preparatory phase, PAMIGA also assisted RFIs in defining the roles and responsibilities of each staff internally, writing an adapted manual of procedures for Solar Loan, working on financial projections to set the right pricing and identify the break-even point, adjusting the existing staff incentive scheme, defining the marketing strategy, developing a monitoring plan, and training staff on new financial product.

On the other hand, partner providers and distributors had to work on their own financial projections, anticipate adequate stock management, set their internal organization, define their marketing strategy and communication tools, develop User Guides and warranty cards adapted to the target populations (in local language, with illustrations), and provide training on their solar solutions to the RFI field staff.

Operations then started with demonstration sessions conducted jointly by RFI and partner providers' field staff with groups of microfinance clients. Between the initial needs assessments and these first promotion activities, the preparatory process lasted 4 to 9 months, depending on the country. The two-hand model has been tested since August 2013 in Cameroon, September 2014 in Ethiopia, and July 2015 in Kenya.

3. MAIN RESULTS AND LESSONS LEARNED

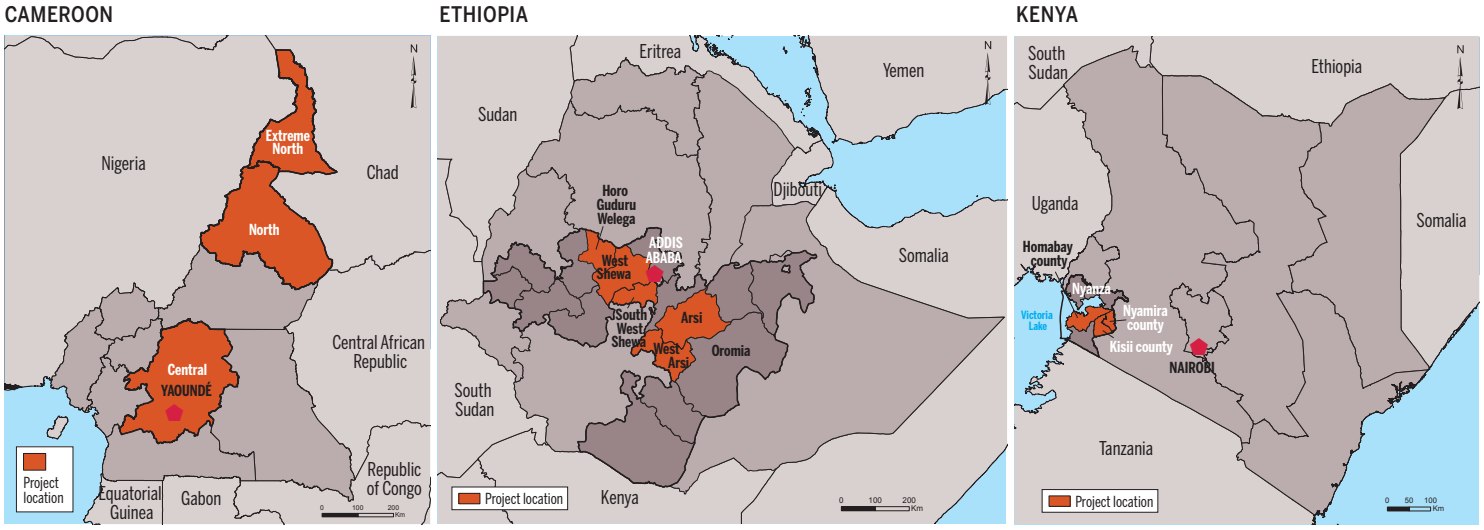
3.1. FIRST RESULTS

As of the end of December 2015, a total of 1,993 solar kits in Cameroon, 1,124 kits in Ethiopia and 446 kits in Kenya have been distributed through this two-hand model.

Table 4. First results

	Cameroon	Ethiopia	Kenya
Number of solar solutions distributed	1,993	1,124	446
Number of months of operations	28 months	15 months	5 months
Geographical coverage	40 branches in Central region + 8 branches in Northern-Extreme North regions	11 branches in Oromia region	15 branches in Kisii, Nyamira and Homabay counties, Nyanza Province
Percentage of pico-solutions	97%	78%	91%
Percentage of solar home systems	3%	22%	9%

Figure 2. Project locations



Source: FERDI

Even though these results are positive, they are much lower than what all partners initially expected. In Cameroon and Ethiopia, operations started rather slowly despite a great initial enthusiasm from both RFIs and solar solution providers. Moreover, results have showed important fluctuations from one quarter to the other, as illustrated in the three following figures. Indeed, the implementation of the two-hand model faced various challenges (detailed in Section 3.3), which negatively impacted the uptake of Solar Loans. Partners progressively had to find solutions to address these challenges (cf Section 3.3), which then had a positive effect on results.

3.2. FIRST IMPACTS MENTIONED BY RURAL CLIENTS

To assess the first impacts of Solar Loans on rural clients, PAMIGA conducted focus group discussions with over 200 clients in Cameroon (in June-July 2014, as part of a client satisfaction survey) and 75 clients in Ethiopia (in March and October 2015). The interviewed households were randomly selected among microfinance clients who had invested in a solar solution thanks to this two-hand model. These qualitative interviews revealed that, rather quickly after having purchased their solar solutions (1 to 3 months), clients already mention some positive impacts:

Improved access to quality solar solutions

As obvious as it may sound, the partnerships between RFIs and solar providers first enabled rural households to invest in a quality solar solution more easily. In Ethiopia, in September 2013, 97% of surveyed households stated to be interested in solar energy for their

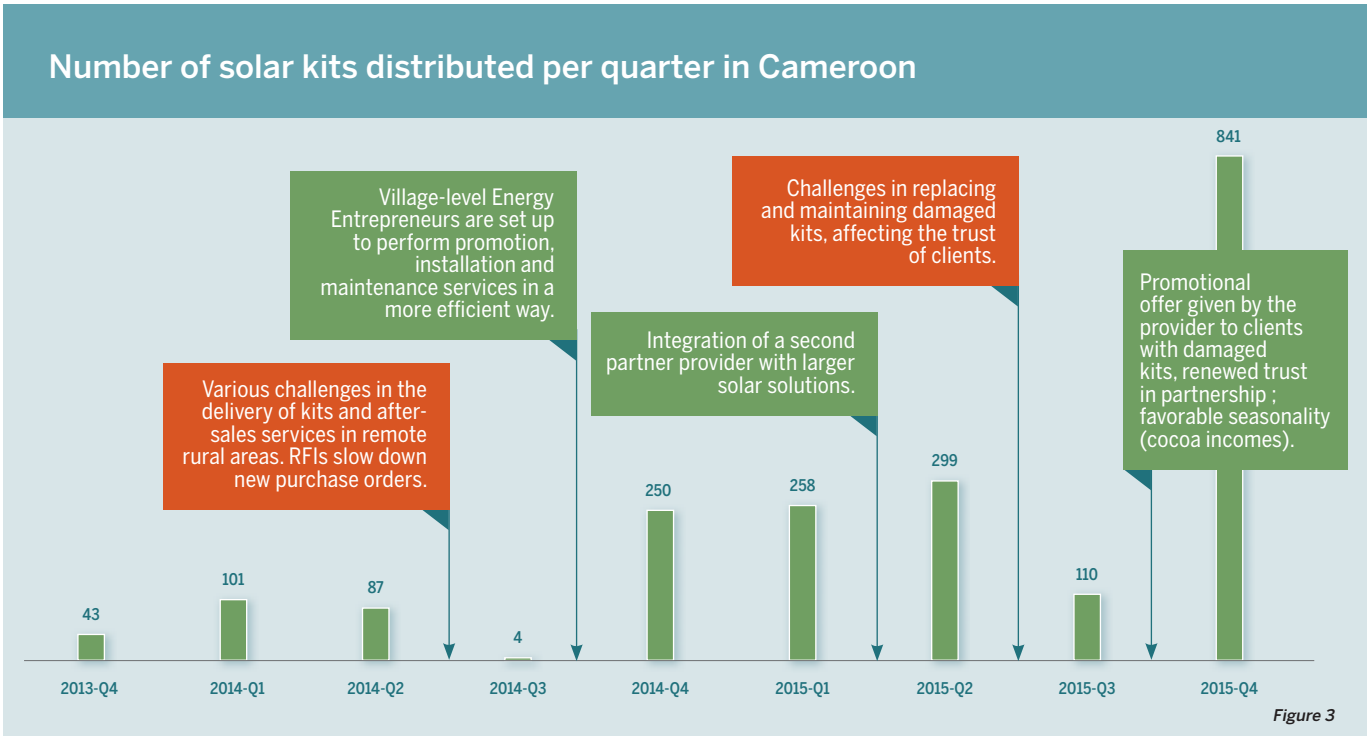


Figure 3

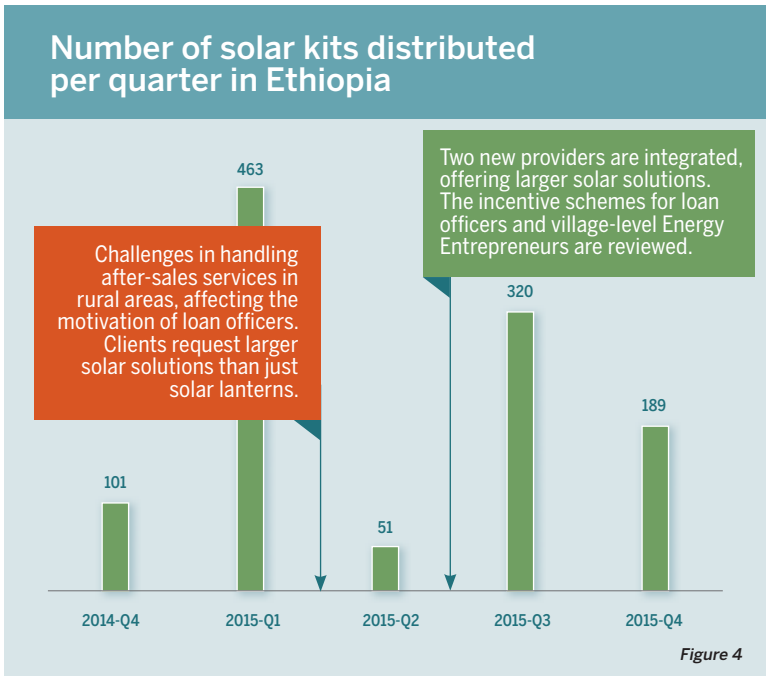


Figure 4

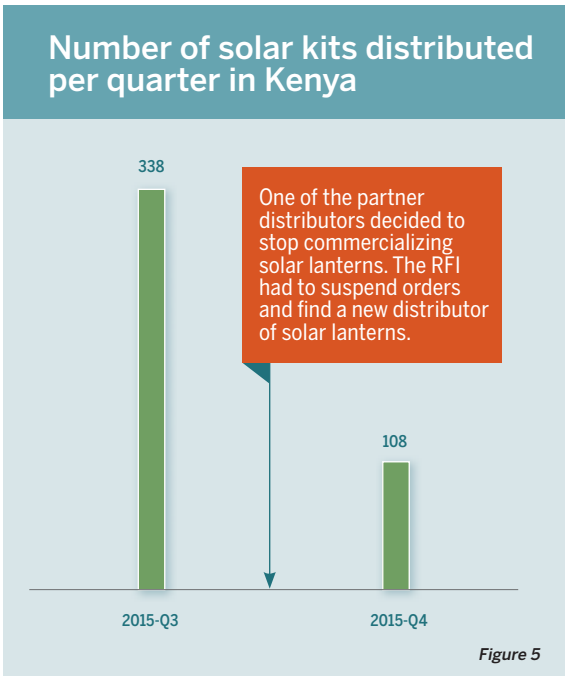


Figure 5

house; but only 1 respondent out of 152 was actually using a solar solution (cf needs assessment results). In 2015, when asked why they did not invest earlier, Solar Loan clients generally answered that they did not have enough information on available solar solutions; some of them mentioned that they could have bought one in cash, from the marketplace in some nearby town, but they were afraid to end up with a low quality product, with no warranty. The RFI thus played an instrumental role here in bringing information to rural households, pre-selecting for them a range of quality solar solutions with warranty and after-sales services, and therefore making them feel more confident to invest in solar.

Interestingly, the same mechanism seems to apply in Cameroon. Most of the solar lanterns distributed through the two-hand model have actually been purchased in cash by rural clients, and not through a Solar Loan. As solar kits are more widespread there than in Ethiopia, these clients could have opted for buying a solar lantern themselves, directly from some local traders. Yet, they preferred to order their solar kit through the RFI and pay a small service fee for that, because the RFI was bringing some guarantee that the solar kit would be of good quality and that the provider would perform after-sales services and respect the warranty period. A more rigorous quantitative study is however still needed to assess more precisely how Solar Loans and partnerships between RFIs and solar providers increase the overall uptake of solar solutions in rural areas.

Improved lighting and living conditions

In Cameroon, the study revealed that Solar Loan clients on average increased their daily lighting duration by 2 hours, with the solar kits allowing them to have lighting for up to 5 hours per day. In both countries, many clients also mention that the solar solution has improved the quality of lighting of their house (higher brightness) and allowed them to have lighting in several rooms at a time.

"We used to use kerosene lamp for lighting, in particular when cooking. Now, we have good light since it gets dark, at 6:00pm, until we switch off, at 10:00pm." (Female client, Bivouna, Cameroon)

"We used to have lighting only in one room, we always had to stay together in the same room. Now, with solar, we parents can be in the living room, and the children play in their bedroom." (Male client, Tuli village, Ethiopia)

Reduction of energy expenditures

In both countries, interviewed clients have experienced a significant decrease in their energy expenditures, as the solar solution enabled them to reduce or even stop the use of kerosene lamps, as well as to stop paying for mobile phone charging services in town.

"Before, we would use 2L of kerosene per week. Now, we only use 1L per week." (Female client, Bivouna, Cameroon)

"Before my solar kit, I used to pay FCFA 58,000 for lighting my bar and my house. Now, I only pay FCFA 28,000, it is a miracle!" (Couple, Bivouna, Cameroon)

"We are a family of six. Before the solar kit, we used to spend Birr 20 per week for kerosene, and Birr 6 per week for charging our mobile phones. Now, we do not use kerosene anymore, we can save that money." (Male client, Bola village, Ethiopia)

Some first social effects

Other impacts are also regularly mentioned by interviewed clients, such as the possibility for children to better study in the evening at home (thanks to more lighting hours and better quality of lighting), the reduction of health issues linked

to the use of kerosene lamps, or even more socializing opportunities in the village.
"Before, when I was sneezing, it was all black and dirty [because of kerosene lamps' emissions]. Now, it is not black anymore!" (Male client, Tulu Habib, Ethiopia)
"I am proud, I have lighting like people in Addis! Many neighbors come to our place in the evening, we all enjoy chatting together." (Male client, Yeron Ama Tole, Ethiopia)

3.3. KEY CHALLENGES AND LESSONS LEARNED

Even if the context of intervention is rather different from one country to the other, some key lessons have emerged from these experiences:

Adaptation of solar solutions to local needs is a key success factor.

Solutions that had proved successful in Asia did not systematically encounter the same uptake in Cameroon or Ethiopia. For instance, in areas where people have extremely limited experience with electrical devices, some solutions, initially thought to be user-friendly, still turned out too complex to handle by target clients alone. To address a slow uptake of the solution, partners had to develop a service of installation for clients who did not feel comfortable with the solar solution at first; this implied a slight adjustment in the pricing of the solution, to include the cost of this additional service.

In Ethiopia, several clients complained that the cables to connect the lamps to the battery were not long enough to reach all their rooms. In reality, the solar solutions may not have been adapted to the traditional features of rural Ethiopian households, which are often composed of 2 to 3 small houses. In this case, to avoid frustrations on clients' side, partners had to put emphasis on customer education at the time of promotion, making sure that they would order a solar solution adapted to the layout of their rooms and houses.

In all three countries, many clients also quickly wanted to graduate from small solar lanterns and climb the energy ladder up, requesting solar solutions with more lamps and other applications. To respond to these needs, RFIs, who usually started with solar lanterns only, then decided to progressively include larger solar solutions and partner providers.

In a context of fast technological innovation, evolving needs and fierce competition from low-quality products, having the capacity to offer a range of adapted solutions is thus crucial both for the solar solution providers and for RFIs.

It is essential to facilitate synergies between the worlds of microfinance and energy.

Building strong local partnerships between RFIs and distributors of solar solutions is essential for the successful roll-out of such a model. The first months of operations have shown that it is important not to underestimate the time needed to build understanding and trust between the different actors. RFIs and solar solution providers indeed come from two different sectors that are not used to working together. They may decide to collaborate along similar objectives (improving access to clean energy solutions for low-income populations), but they each have their own vision, procedures and technical language. For instance, local distributors seek to maximize the sales of solar solutions, and thus push the demand as much as possible; whereas RFIs want to have a high outreach, but also have to manage good customer relationships and credit risk. RFIs need to go through a learning curve, integrate new products and practices, in addition to careful appraisal processes that could appear as lengthy and inefficient in the eyes of distributors.

Furthermore, RFIs and local distributors do not understand well the constraints that can be faced by each partner (such as minimum volumes for delivery for distributors, or seasonality of loan applications in rural areas for RFIs). These differences in expectations and misunderstanding of each other's constraints have sometimes led to tensions between the partners. The pilots showed that for the two sectors to understand each other, communicate and work together effectively, it is essential to have an organization that can act as a facilitator during the startup phase, to ease the tensions and progressively make partners better understand each other (through regular workshops, exchange visits, adjustments of detailed procedures, moderation, etc.). However, one cannot expect such type of two-hand model to be fully functional and sustainable since the beginning: building partnerships between RFIs and solar solution providers remains a learning process that requires strong motivation, commitment, patience and perseverance from all partners.

Motivating solar distributors and RFI field staff is instrumental in achieving good results.

Solar solution distributors are typically located in urban areas and have a very limited knowledge of the needs of the BOP and the challenges of working in rural areas. In Cameroon, the partner distributor was at first enthusiastic at exploring this new market segment. However, its level of motivation and commitment decreased quickly when the company realized the specificities and complexities of working in rural areas and started to question the market potential behind access to clean energy for poor rural populations, which hindered the progress of the pilot. In Ethiopia, the situation was very different: the partner distributor has shown very high interest and commitment, which has allowed to build trustful relationships with RFIs more easily. However, the distributor is mainly motivated by its social responsibility and still rather skeptic on the business case in addressing this new market. Lack of successful business cases and slow returns on investment are key challenges in keeping national distributors motivated.

Motivating **RFI field staff** is also of critical importance. Loan officers often perceive Solar Loans as complex and time-consuming. Managing these products required a greater involvement of field staff, in particular to coordinate purchase orders and deliveries,

Solar panel installed on the roof of a rural house, Kenya
Source: PAMIGA

support clients to install kits, and educate them in the proper use of the solutions. At times, loan officers even had to act as a facilitator for after-sales services. The risk then is that loan officers prioritize more conventional loans, at the expense of Solar Loans. The pilots made it clear that it was essential to clearly communicate to the teams on the financial and strategic benefits expected for their institution, as well as to have an adapted incentive system (financial or otherwise, dedicated to Solar Loans while at the same time fully integrated in the overall incentive scheme of the RFI), while adjusting the allocation of roles between RFIs and local distributors.

RFIs cannot do it all.

Quite quickly, it appeared that the initial distribution of roles and responsibilities defined between the microfinance and energy actors could not be applied. Solar solution distributor, historically located in urban areas, did not have the decentralized representatives in rural areas to perform the required tasks of marketing and after-sales services. They even tended to assimilate RFIs to retailers of solar solutions, expecting them to be actively promoting the solar solutions and distributing them on their behalf. As a consequence, RFIs' field staff had to assume a variety of additional activities, ranging from delivery of the kits to education of clients on the use of the solar solution and management of after-sales services. This goes far beyond what microfinance institutions usually do and had a direct impact on staff motivation: the new financial products were then perceived as too complex, costly and time-consuming for the rural outlets. With no local presence of the solar solution distributor and low motivation from microfinance field officers, the marketing of solar products and Solar Loans was thus very limited, resulting in low demand from clients.

The pilots made it clear that RFIs alone cannot do it all: they are not in a position to act as a retailer and handle all technical services (i.e. marketing, delivery, installation, customer education, after-sales services). Loan officers cannot become "sales agents" getting commissions for each solar unit sold. Such positioning would actually represent a mission drift which could put at risk the whole institution. To bridge the gap between urban-based solar solution distributors and rural target clients, PAMIGA and its partners then decided to set up networks of Energy Entrepreneurs, located in the villages. These entrepreneurs are responsible for promoting solar solutions and offering local high quality services to clients (delivery, installation, after-sales services). A business model has been defined so that the Energy Entrepreneurs are profitably and sustainably integrated into the partnership between the RFIs and solar solution distributors *(please refer to the following article Allet (2016), "Energy Entrepreneurs : an innovative model to reach the last mile).*

3.4. POTENTIAL FOR UP-SCALING AND REPLICATION

Building on these lessons, PAMIGA is now supporting partner RFIs in Cameroon, Ethiopia and Kenya in scaling up, by rolling out Solar Loans to their whole networks of rural branches and diversifying the offer of solar solutions (from solar lanterns to larger solar home systems, from domestic to productive use of energy). The two-hand model is also being replicated in new countries where PAMIGA has partner RFIs, such as Benin and Senegal, each time with specific attention given to adaptation to the local context and with a long-term vision aiming to build a sustainable, efficient and scalable business model.

"RURAL FINANCIAL INSTITUTIONS ALONE CANNOT DO IT ALL."

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