

ENERGY ENTREPRENEURS: an innovative model to reach the last mile

Marion Allet

Environment & Microfinance Programme Officer, PAMIGA.
marion.allet@pamiga.org



Delivery of solar lanterns at the last mile, Ethiopia
Source: PAMIGA

Marion Allet (PhD) is an Environment & Microfinance Programme Officer with PAMIGA. She assists rural financial institutions (RFIs) in developing financial services for access to solar energy in rural sub-Saharan Africa.

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 service rural areas. It provides technical assistance to a network of 16 RFIs in sub-Saharan Africa.

KEYWORDS

- LAST MILE
- SOLAR ENERGY
- ACCESS TO ENERGY
- RURAL DISTRIBUTION
- RURAL SUB-SAHARAN AFRICA

Today, reaching the last mile in remote rural areas remains a big challenge for many solar solution providers. Since 2014, PAMIGA has been testing a new model to bridge the gap between urban distributors and rural clients: the Energy Entrepreneur model. This article presents the unique features of the model, its first results and impacts, as well as the key challenges and lessons learned from its implementation in Cameroon and Ethiopia.

INTRODUCTION: THE CHALLENGE OF LAST MILE DISTRIBUTION FOR SOLAR SOLUTIONS

Access to electricity in rural areas in sub-Saharan Africa could be greatly improved thanks to off-grid, solar solutions. A range of technologies exist today. However, many providers and distributors of solar solutions face a clear challenge of reaching the last mile, i.e. reaching out to customers located in rural, off-grid, remote areas. Shukla & Bairiganjan (2011) indeed identify some key challenges to the distribution of energy products for rural Base of the Pyramid (BoP): the sparse population density, lack of infrastructures, variety of local languages and low literacy level. These features of the BoP market make it difficult for providers of solar solutions to develop standard, cost-effective marketing and communication material, to disseminate quickly knowledge and experience, and to manage distribution and as well as customer and maintenance services in a cost-effective way (Winiecki & Kumar, 2014). The challenge is even more acute since manufacturers or distributors who have the capacity to import and/or assemble solar solutions are systematically located in urban centers. Within this specific context, PAMIGA has been testing a new model to bridge the gap between urban distributors and rural clients: the Energy Entrepreneur model. This article presents the unique features of the model, its first results and impacts, as well as the key challenges and lessons learned from its implementation in Cameroon and Ethiopia.

1. A VARIETY OF LAST MILE DISTRIBUTION MODELS

To distribute their products in rural areas, solar solution manufacturers and distributors have to find intermediaries between them and the customers. In the very dynamic market of clean energy for the Base of the Pyramid, a variety of strategies are being tested in this perspective:

DEVELOPING OWN NETWORK OF LAST MILE AGENTS (PROPRIETARY DISTRIBUTION MODEL)

Some solar companies have opted for developing their own network of employees (sales agents and technicians). This is for instance the case of Mobisol, who has created its own network of “market huts” in small towns of Tanzania (Linder, 2014), and of Simpa Network, who has set up a network of sales agents and technicians to ensure installation, maintenance, repair and education on solar solutions in India (Needham, 2014). This strategy however implies high upfront investments. Very few manufacturers actually choose this option due to the complexity and prohibitive costs related to channel development, control, monitoring and management (Shukla & Bairiganjan, 2011).

PIGGYBACKING ON EXISTING NETWORKS

Solar solution companies have been very innovative in identifying existing decentralized networks and piggybacking on them. SolarAid-SunnyMoney, for instance, opted for penetrating the rural BoP market in East Africa through rural school teachers, starting with entry-level solutions at special price in school (Miller et al., 2015). This strategy has proved efficient to build trust and get the market started, but can only be considered as a first step before developing a network of agents or shops.

Other solar solution providers have opted for piggy-backing on existing networks of gas stations, such as OneDegree Solar (Stout, 2015), or telecom retailers (such as d.light in Ethiopia). Yet, these intermediaries are usually limited to pico-solutions (lanterns) that do not require any strong technical knowledge, since they would not have the mandate and capacity to provide more complex installation and repairing services.

Most solar companies also try to work through small retailers, such as OneDegree Solar, BBOX, d.light, Light4All Cameroon, etc. However, they widely agree that the model presents some key challenges. First, small retailers in rural areas often lack the capacity to pre-finance a small stock of solar kits. Some companies have tried to consign products or provide credit facilities to the retailers, but the experience did not always turn out well. For instance, Light4All, in Cameroon, faced repeated cases of fraud from retailers who had sold the kits but refused to pay the distributor back. Second, solar distributors, being based in urban areas, have difficulties to identify reliable small retailers in rural areas and to closely monitor their activities. Several solar companies emphasize that these retailers are often very active in marketing and selling the solutions, but lack capacities to properly handle their stock and do not have the right mindset when it comes to providing customer services, in particular after-sales services (Hamayun, 2014; Mercy Corps & d.light design, 2013; Shukla & Bairiganjan, 2011).

Finally, several providers have also opted for partnering with rural financial institutions (RFIs) to reach the last mile, such as banks or

microfinance institutions' networks. RFIs indeed have a good knowledge of their clients and the capacity to offer financial services to facilitate investment in the solar solutions. However, experience has showed that not all microfinance institutions have the capacity to reach out to rural areas (Linder, 2014), that many were reluctant to actively enter in this market that appeared risky in their eyes (Hamayun, 2014), and that one cannot expect financial institutions to take over full responsibility for marketing, delivering, installing and maintaining solar solutions (PAMIGA, 2014; Shukla & Bairiganjan, 2011; Allet, 2016).

FOSTERING LOCAL ENTREPRENEURSHIP

Another strategy tested has been that of fostering the creation of local microenterprises or microfranchises, as tested by Orb Energy in India or Solar Sister in East Africa (Lucey, 2015). This model slightly differs from that of small retailers, since the microentrepreneurs are not necessarily involved in retail selling beforehand. These microentrepreneurs may become sub-retailers of solar solutions (Lucey, 2015) or manage solar battery charging stations and charge small fees to their local customers (Vermot-Desroches & André, 2012). This model has proved efficient in certain contexts but seems to require a high level of technical support to help the microentrepreneur build their skills and capacities. Furthermore, similar to the model of small retailers, a main challenge remains the lack of financing capacity of these microentrepreneurs.

USING TECHNOLOGIES

Finally, some companies involved in “pay-as-you-go” models are using technologies (like SMS or mobile money) to facilitate payments, customer education, impact data survey and customer support services (Hamayun, 2014; Stout, 2015). This strategy is very cost-effective once the clients have received their solar solution. Technologies cannot however fully replace the need to have last mile agents for the promotion, delivery, installation and maintenance of the solar solutions.

The different strategies implemented to reach last mile populations all seem to have their own advantages and limitations. Within its specific context of intervention, PAMIGA has been testing a new hybrid model in the past years: the Energy Entrepreneur (EE) model.

2. THE ENERGY ENTREPRENEUR MODEL TESTED BY PAMIGA

2.1. ORIGINALITY OF THE MODEL

The model tested by PAMIGA is innovative in that it tries to combine different strategies of last mile distribution in order to take the best from each and mitigate their respective risks. More specifically, the Energy Entrepreneur model seeks to develop a network of independent last mile agents while piggybacking on RFIs' structures.

EEs are independent individuals, from local communities, who are selected and contracted by solar solution distributors to perform activities of promotion, installation, customer education and after-sales services at the last mile level.

The model is innovative in that it involves various stakeholders who each play a key role in setting and managing the network of EEs. Similar to some "sales agents" or "sub-retailer" models, the solar distributor signs contracts with the EEs, provides them with specific training on their solar solutions (technical and marketing training), pays them a commission for their work, and ensures technical and after-sales support. However, in PAMIGA's model, the distributor is not the only entity in relation with the EEs. RFIs, who are partnering with the concerned solar distributors (refer to Allet, 2016) are also involved in developing and monitoring the network of EEs. Thanks to their existing decentralized structures, RFIs help address several of the challenges and risks faced by solar energy companies who try to develop last mile agent networks, but without having to perform themselves the role of these last mile agents.

More specifically, the hybrid model tested by PAMIGA seeks to manage the following risks:

- **EEs are carefully selected with the support of RFIs' field staff**, who already know the local people and communities and can easily ensure the selection of candidates with good reputation (honest). This can **limit the risk of fraudulent or irresponsible behaviour** from last mile agents.
- **EEs are service providers. They do not hold a small stock or directly buy from the distributor and sell to clients.** EEs are indeed in charge of: (a) promoting solar solutions among the rural communities to which they belong; (b) assisting clients in installing their solar solutions, when needed; (c) raising clients' awareness on the good use and maintenance of the solar solution; and (d) facilitating after-sales services by responding to clients' questions or complaints, making a diagnosis in case of technical problem, fixing the problem when it is due to inadequate installation or maintenance,

informing clients about the warranty conditions, and coordinating with the solar distributor when defective kits have to be replaced. In a first phase, PAMIGA and its partners thus decided to limit the role of EEs to that of village-based service providers, rather than a role of sub-retailers who hold a small stock of solar solutions and buy and sell them directly to end-customers. With this approach, it becomes easier to select adequate profiles among a wider range of candidates, since EEs do not need to have a small shop or warehouse. Furthermore, **capacity to pre-finance a small stock at local level is not an issue anymore.**

- **EEs do not directly handle cash.** EEs do not handle any cash payment between the clients, RFIs and distributors. They are not remunerated on a margin that they would make by buying and selling solar kits themselves (sub-retailer model), but are paid a commission for each unit sold (more similar to some proprietary agent models). As agreed within the partnerships between RFIs and solar solution distributors, **payments of the solar solutions are made by RFIs directly to the solar solution distributors** (refer to Figures 1 and 2 for more detailed processes). This strategy has two clear advantages for the distributors: (i) the purchase orders are compiled at RFIs' level, making it easier for the distributor to optimize its deliveries to rural areas; and (ii) the **risks of default on payment and fraudulent behaviours are drastically reduced for distributors.**
- **EEs are monitored with the support of RFIs' field staff.** Thanks to their network of branches and rural outlets, RFIs are indeed in a much better position than urban-based solar distributors to check if EEs are performing well and **make sure that any risk of fraud or drift is quickly and effectively mitigated.** Additionally, by approving and supervising the EEs, the RFIs play a crucial role in making Energy Entrepreneurs appear as trustable in the eyes of clients.

2.2. INSTITUTIONAL FEATURES OF THE MODELS IMPLEMENTED IN ETHIOPIA AND CAMEROON

This innovative model has been tested by PAMIGA since 2014 in Ethiopia and Cameroon.

In Ethiopia, the partner RFIs not only offer financial services to end-users who would like to invest in a solar solution; but they also play a key role in making the network of EEs successful. Indeed, if contractual relations of EEs are with the distributor, operational relations are mostly handled by partner rural RFIs. The latter are in a better position to manage, supervise and monitor the EEs, thanks to their presence in rural areas. Branch managers and loan officers are thus in charge of: (a) coordinating with EEs for conducting joint demonstration sessions; (b) organizing the schedule of EEs for installation of the solar solutions at clients' houses; (c) facilitating the commission payment to EEs on behalf of the distributor; and (d) monitoring the performance of each EE and providing feedbacks to the distributors.

“THE ENERGY ENTREPRENEUR MODEL SEEKS TO DEVELOP A NETWORK OF INDEPENDENT LAST MILE AGENTS WHILE PIGGYBACKING ON RURAL FINANCIAL INSTITUTIONS' STRUCTURES.”

Energy Entrepreneur model implemented in Ethiopia

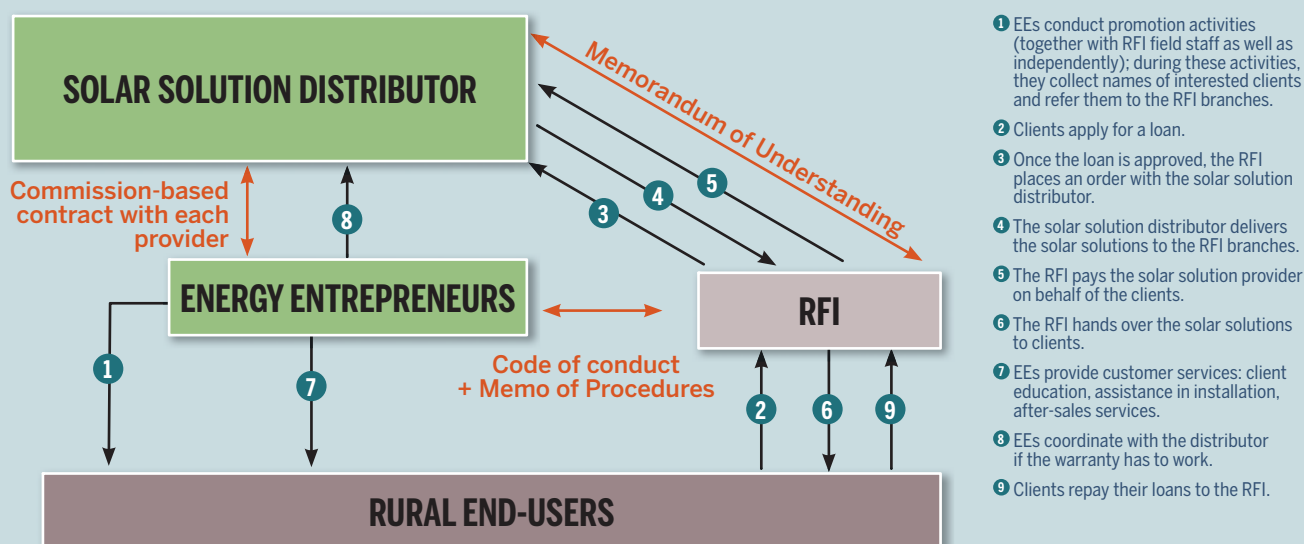


Figure 1

In Cameroon, the model was slightly different, with the introduction of a local NGO, MIFED¹, to play the role of supervising organization of EEs. In this model, MIFED plays a key intermediary role between all partners (solar solution distributors, rural RFIs, and EEs), compiling purchase orders, centralizing kit deliveries, facilitating payments of EEs on behalf of the distributors, coordinating after-sales activities, and monitoring EEs' performance. The organization furthermore provides strong technical support to EEs regarding marketing techniques and business management. To play this role of coordination, supervision, animation and monitoring of the EEs, MIFED has been granted specific funding from PAMIGA.

Energy Entrepreneur model implemented in Cameroon

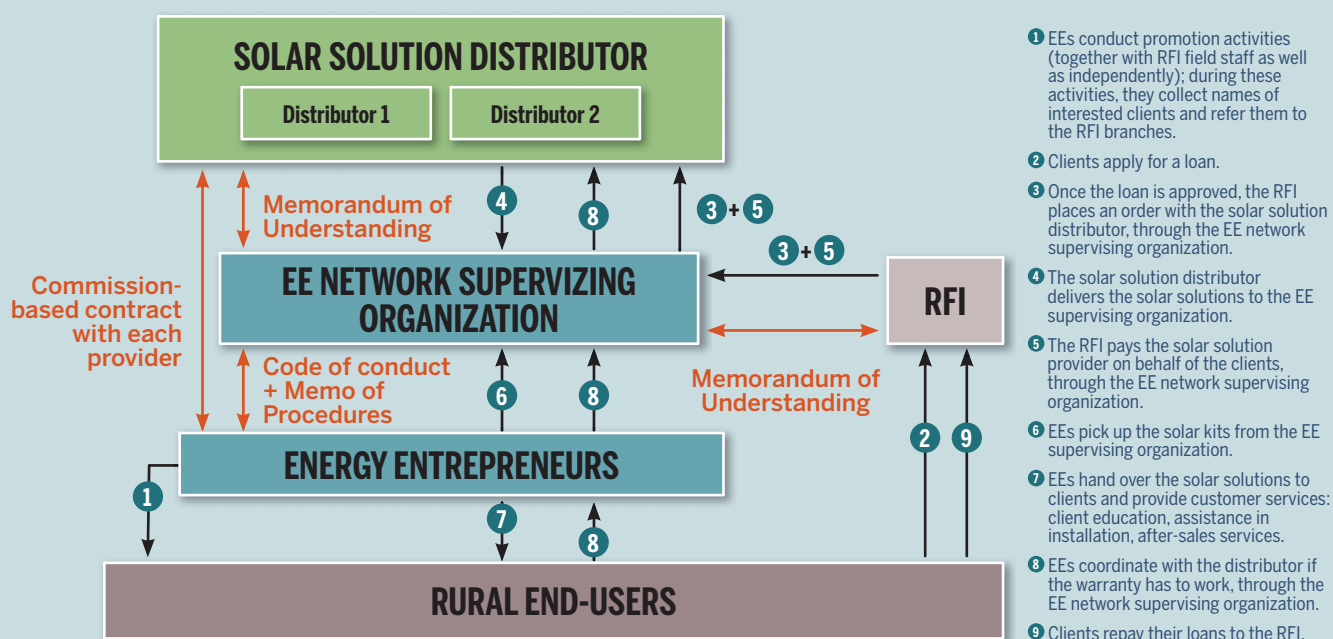


Figure 2

¹ MIFED (Microfinance & Développement) is a Cameroonian NGO that provides technical assistance to microfinance institutions in Cameroon. It has been a historical partner of PAMIGA.

This difference between the Ethiopian and Cameroonian models is directly linked to the context of intervention in each country: in Ethiopia, RFIs were initially working with a single partner distributor who expressed strong motivation in directly developing and supervising such a network of EEs; while in Cameroon, RFIs were planning to work with two different distributors and identified the involvement of a third party as a better option to develop a brand-agnostic network of EEs which could be used by both distributors (thereby fostering synergies and economies of scale).

2.3. SELECTION OF ENERGY ENTREPRENEURS

In Cameroon and Ethiopia, criteria for selecting EEs were defined during participatory workshops gathering representatives of the RFIs and solar solution providers. In general, participants agreed that the ideal profile of an EE is that of a young dynamic person, well settled in the target rural area, well known and appreciated by the community. Requirements regarding the level of education remain basics (being literate) since it is not realistic, in these rural areas, to expect to find graduates from technical schools in all villages. Rather, what is favoured is the high motivation, willingness to learn and perform, and capacity to handle things.

ENERGY ENTREPRENEUR SELECTION CRITERIA DEFINED IN ETHIOPIA

- ✓ Target: between 18 and 35 year-old
- ✓ Must speak the local language
- ✓ Must know how to read and write
- ✓ High interest / willingness / motivation in promoting access to solar solutions
- ✓ Settled in the village or area
- ✓ Should already have a source of revenue – EE activity only as additional
- ✓ Available for an extra activity / not involved in too many activities
- ✓ Good reputation, trusted by the community
- ✓ Good physical condition (to walk distances and carry the kits)
- ✓ Ability to talk / convince / communicate / market
- ✓ Knowledge or experience in technology-related businesses: mobile phone charging, mobile maintenance, radio repairing, etc.
- ✓ High school / technical training education is an asset
- ✓ Having received training on solar energy through the Ministry of Energy program is an asset
- ✓ Owning own means of transportation (horse, mule, bike, etc.) is an asset

“RURAL FINANCIAL INSTITUTIONS PLAY A CRUCIAL ROLE IN MAKING ENERGY ENTREPRENEURS APPEAR AS TRUSTABLE IN THE EYES OF CLIENTS.”

As they have a good knowledge of the rural communities where they work, the RFIs' loan officers and branch managers were asked to identify candidates with the right profile in their area of intervention. The solar solution distributor then conducted interviews with each candidate to assess the adequacy of their profile and their level of motivation. The coordinator of clean energy activities within the RFI (referred to as “Energy Champion”) also participated in the interviews. The final decision was then jointly made by the solar solution distributor, RFI branch manager, and RFI Energy Champion. In general, between 2 and 4 EEs were selected per branch or rural outlets, depending on the areas to be covered.

In both countries, the typical profile of selected EEs was that of a young man, aged between 20 and 35, usually engaged in farming activities and developing (or seeking to develop) a small business to get an additional source of income. Despite efforts to promote female candidates, very few women applied to this opportunity because the job of EE, which implies frequent visits to households and community groups, was often perceived as not “suitable” for woman (although in reality, the few women selected to become EEs have proved to be among the most active and performing EEs so far).



Training graduation of the first Energy Entrepreneurs in Cameroon
Source: MIFED

2.4. TRAINING OF ENERGY ENTREPRENEURS

Selected EEs then received a two-day training on the following topics:

- Introduction to solar energy and selected solar solutions (products, components, functioning, installation, capacity, autonomy, limitations, etc.);
- Role and responsibilities of the EEs;
- Supervision / relation with the RFI and solar solution distributors;
- Procedures to follow;
- Marketing messages and techniques;
- Installation of the solar solutions and basic trouble-shooting / maintenance;
- Key messages and techniques for customer education on the good use of the kit;
- Business management;
- Sales price and commission payment;
- Objectives, evaluation and incentive system.

In Ethiopia, the trainings were exclusively conducted and financed by the solar solution distributor, with technical support of PAMIGA to develop the training module. A total of 48 EEs received training in June 2014. In Cameroon, the trainings were conducted by MIFED, with technical support from the partner solar distributors. A first round of 23 EEs was trained in September 2014 (followed by a second round of 19 EEs in May 2015).

In both countries, at the end of the trainings, the EEs who proved to have sufficient motivation and capacity were invited to sign a contract with each solar distributor, as well as a Code of Conduct describing the responsibilities of the EE and his moral commitments towards clients and partners. Contracts were signed with 44 Energy Entrepreneurs in Ethiopia and 40 Energy Entrepreneurs in Cameroon. They were also given a Memo of Procedures presenting in details the procedures to follow for each activity under the EE responsibility (what should be performed, by whom, when).

2.5. MARKETING MATERIAL

In Cameroon, partners identified very soon that it was crucial to create visibility and sense of identity for the EEs. In this perspective, a logo was created and printed on T-shirts, each EE being granted 2 T-shirts. The objective was dual: (a) to create a sense of ownership, a pride to be an EE, a feeling of belonging to a group and a collective project; and (b) to give visibility to the EEs, making them “legitimate” representatives of the solar solution providers in the eyes of local communities. Each EE was also provided with a demonstration kit and with a first pack of 300 flyers promoting the solar solutions and Solar Loans. The demonstration kits were granted by the solar solution provider, while the T-shirts and flyers were financed with the support of PAMIGA.

In Ethiopia, the network of EEs was developed under the supervision of the partner solar distributor. The latter decided that for an initial phase, providing one demonstration kit at the RFI branch level, to be used by the EEs operating around that branch, would be sufficient. No marketing material was thus provided to the EEs at that time.

2.6. COMMISSION PAYMENT

To perform their tasks of promotion, installation, customer education and after-sales services, EEs are paid a commission for each unit sold. This commission was included in the price of the



Figure 3. Example of Energy Entrepreneur logo from Cameroon

solar solution, in order to ensure the sustainability of the model. The level of commission for each type and unit of solar solution was discussed among partner RFIs and solar solution providers, with inputs from loan officers and EEs themselves. The objective was to define a commission that is attractive enough to keep EEs motivated, while not increasing too much the price for the end-client. In Cameroon, the commissions were set between FCFA 500 (EUR 0.75) for solar lanterns and FCFA 4,000 (EUR 6) for larger solar home systems, representing 2% to 4% of the price of the solution. In Ethiopia, the commissions were defined between ETB 50 (EUR 2) for solar lanterns and ETB 120 (EUR 5) for larger solar home systems, representing 3% to 4% of the price of the solution. It was decided that the commission will be paid after EEs have assisted clients in installing the solar solutions and brought back satisfactory reports signed by the clients.

In both countries, there were intense debates on the relevance to provide separate commissions for the performance of after-sales services. Most partners were however concerned that EEs could perform unnecessary or false after-sales services in order to charge additional commissions to the distributor. It was thus decided to keep a single commission per unit sold, which includes the remuneration of after-sales services (as a flat rate), and to clearly communicate to EEs that they still remain responsible to perform after-sales services during the warranty period, making them aware that if clients face a technical problem that is not properly solved, it will generate negative word-of-mouth that will finally impact the demand, and therefore the potential business for the EE. To make this mechanism work, it is then crucial to make sure that clients are fully aware that EEs should perform these after-sales services “free-of-extra-charge” during the warranty period and that proper client complaint mechanisms are in place to enable proper monitoring.

2.7. INDIVIDUAL TARGETS DEFINITION AND MONITORING

During the trainings, selected EEs were also asked to set their own goals (in terms of number of solar solutions) for the coming 6 months. They could define (a) minimum targets they are sure to achieve; and (b) more ambitious objectives that they would do their best to achieve. The trainers provided them some guidance when they believed that the self-defined objectives were not realistic or too modest. Making EEs define their own goals, rather than imposing targets, was a way to create motivation and ownership.

Monitoring of performance for each EE was then facilitated by MIFED, the EE supervising organization, in Cameroon. In Ethiopia, this role was given to RFIs' loan officers, who are in a better position than the distributor to follow up what is going on in the field – checking the number of clients brought by the EE, clients' feedbacks on after-sales and other customer services, etc. In case of problem, the RFIs then report to the solar solution distributor, who is responsible to follow up with the concerned EEs.

EEs already receive a commission per unit sold: this already constitutes an “incentive” for them to perform on promotion and after-sales services. However, as solar energy was a new area for most selected EEs, partners agreed that it would be useful to set some exceptional rewards during the first year of operations in order to boost EEs' motivation and make them realize that, once they have overcome the challenge of starting a new activity, solar energy could be a good business opportunity for them. In both countries, the partners jointly define some “thresholds” (in terms of number of solar solutions) that would allow the EE to get a special reward. Possible rewards, according to the EE performance, were the following: certificate of good performance, additional T-shirts and hats, free demonstration kit, selection to be trained on larger solar solutions, and exceptional cash reward.

“THE UPTAKE INCREASED FROM 20 SOLAR KITS PER MONTH BEFORE THE INTRODUCTION OF ENERGY ENTREPRENEURS, TO 117 KITS PER MONTH AFTER.”

3. MAIN RESULTS AND LESSONS LEARNED

3.1. FIRST RESULTS OF THE PILOT IMPLEMENTATION

A higher uptake of solar solutions

In Cameroon, the results were quite fast and impressive in terms of uptake. Two weeks after the first training (September 2014), a couple of EEs had already sent a first purchase order. Within 3 months (October to December 2014), a total of 468 solar kits were ordered, multiplying monthly performance by almost 17. The trend however decreased slightly in the following months, as the solar solution distributor had not anticipated such a larger uptake and had to renew its stock of solar kits. On average, the uptake increased from 20 solar kits per month before the introduction of EEs (October 2013 to September 2014), to 117 kits per month after (October 2014 to December 2015). This trend could thus hint to a positive effect of EEs on the uptake of solar solutions, thanks to their active promotion activities at the last mile level. However, this data should be interpreted with caution since it is difficult to attribute this positive change to the sole introduction of the EE model: many other factors, such as the evolution of the partnerships between the RFI and distributor, range of solar solutions offered, seasonality of income, etc., may also have influenced these results. In Ethiopia, it is indeed even more difficult to attribute the impact of EEs to the global uptake of solar solutions, since EEs were included in the partnership model between the RFIs and distributor since the beginning.

Some positive effects identified by the various stakeholders

Partner RFIs in both countries seem to clearly appreciate the role performed by EEs. In Cameroon, RFIs have expressed that the introduction of EEs and the involvement of MIFED in supervising them have clearly reduced the burden on field staff, who were released from most promotion, education and follow up activities linked to the solar solutions, and could focus on the financial services provided to the clients. In Ethiopia, the RFIs' field officers have identified a clear contribution of the EEs in terms of client education: in areas where EEs have been actively involved, the rate of client complaints due to misuse of the solar solution clearly decreased (i.e. from 100% to 18% in Tulu Habib rural outlet, Ethiopia). This had overall a positive impact on the image of the solar solutions and the RFIs.

Rural clients themselves, interviewed by PAMIGA during focus group discussions (conducted with over 200 clients in Cameroon in June-July 2014 and 75 clients in Ethiopia in March and October 2015) similarly seem to appreciate the presence of EEs at village level. In particular, they value the fact that the EE is from the community, which has several advantages in their view: (a) he/she can speak the local language; (b) clients know where to find him/her quite easily; (c) clients can use social pressure in case the EE is not performing his/her tasks properly. Overall, clients mostly appreciated the support that they received from EEs in terms of installation, customer education and facilitation of after-sales services.

As for distributors of solar solutions, they seem to be less aware of the impacts brought by EEs. In Cameroon, partner distributors have seen the positive change in the uptake of solar kits following the introduction of EEs. In Ethiopia, it is more difficult, as already mentioned, to identify a separate effect in solar kit uptake. As they are far from the field, distributors do not get regular feedbacks from

end customers themselves regarding the role of EEs. As a result, they seem to be less convinced of the added value of EEs for their own business. This is also linked to a common misbelief among solar solution distributors: the idea that RFIs' field officers could actually perform the same job as EEs... However, many experiences have proved that one could not expect RFIs to play this role (PAMIGA, 2014; Shukla & Bairiganjan, 2011; also refer to Allet, 2016).

Opinion from Energy Entrepreneurs themselves

EEs interviewed by PAMIGA as part of regular follow-up activities (focus groups with 5 EEs in Cameroon in January 2015 and 7 EEs in Ethiopia in March 2015) have expressed mixed feelings regarding their own activity as EEs. On the one hand, they identified some challenges that they were facing and that could be possible areas of improvement for the model. In Cameroon, for instance, EEs mentioned that rural customers were putting high pressure on them to deliver the solar solutions in a very short period of time, which would be less challenging if EEs were allowed to manage small local stocks. In Ethiopia, many EEs requested to get more training and technical support to adequately perform their tasks. On the other hand, interviewed EEs also perceived great potentials. In Cameroon, several of them still expressed high ambitions:

"I see great opportunities here. I want to develop this activity, make it my main business, and maybe soon have one or two people work for me!" (EE, Cameroon),

Rural woman displaying the solar panel that she uses for lighting her house, Ethiopia - Source: PAMIGA/Ries Engineering



“IN AREAS WHERE ENERGY ENTREPRENEURS HAVE BEEN ACTIVELY INVOLVED, THE RATE OF CLIENT COMPLAINTS DUE TO MISUSE OF THE SOLAR SOLUTION CLEARLY DECREASED.”

In Ethiopia, even though EEs said that the commission was slightly lower than what they initially expected, the majority still perceived this job as a good opportunity for them to make some extra income in rural areas where job opportunities are scarce.

3.2. KEY CHALLENGES AND LESSONS LEARNED

Building a last mile EE network still remains a complex and progressive process. Various challenges were encountered during the testing phase of the model, bringing valuable insights for practitioners:

Managing the relationships between RFIs' field staff and Energy Entrepreneurs.

Field staff from partner RFIs has sometimes perceived EEs as competitors that have “stolen” a business opportunity away from them. Pricing of the commissions had to be defined making sure that it would not appear as “unfair” (too high) in the eyes of the RFI staff, while still being attractive enough for EEs. In some areas, some credit committee members or loan officers tried to become EEs despite the clear conflict of interest it would create. Indeed, EEs are incentivized to sell as many solar kits as possible; while loan officers have a dual objective, that of reaching out to many clients, while ensuring that the quality of their portfolio remains high and therefore rejecting applications for clients with insufficient capacity to repay. Furthermore, when PAMIGA and solar solution distributors suggested allowing the most dynamic EEs to hold a small stock and directly handle cash sales, the RFIs expressed clear disapproval, as they were concerned that the EEs would start providing credit and distort the market. By not allowing EEs to handle cash sales directly, RFIs have however put constraints on the EE business model. Balancing the respective interests of each stakeholder thus constitutes one of the clear challenges of this model.

Defining a viable model to supervise and monitor Energy Entrepreneurs.

In Cameroon, MIFED has been mobilized to provide technical support to the network of EEs, to facilitate the relations between EEs, the RFIs and the solar solution distributors, and to



Rural Ethiopian family in front of their house equipped with solar energy - Source: PAMIGA

supervise and monitor the performance of the EEs. MIFED has been playing a crucial role in animating the network in a very successful way. However, MIFED's involvement still depends on donors' grant (channeled through PAMIGA). A more sustainable model needs to be developed to ensure the institutional viability of the value chain.

In Ethiopia, the network of EEs has been supported directly by the solar solution distributor, with the assistance of the RFIs. The direct involvement of the distributor in the supervision of EEs could logically entail a better outlook for sustainability than having a donor-funded external support organization performing this role. Yet, the experience in Ethiopia also revealed the limitations of this approach. First, EEs have been much less active in Ethiopia than in Cameroon, because it was more challenging for the distributor to allocate enough internal resources to ensure the required close monitoring of EEs². Second, EEs in Ethiopia have not been able to work with other energy companies so far, contrarily to Cameroon, whereas the EE business model would be stronger if EEs were able to work with several energy companies at the same time, diversifying

the catalog of clean energy solutions that they can offer to rural populations.

Keeping Energy Entrepreneurs motivated.

Experience has shown that EEs are extremely motivated right after receiving training. However, this motivation quickly decreases if they lack adapted technical support from the solar company or other partner³. In Cameroon, for instance, out of 40 EEs who had received training and signed a contract, 18 only were active in December 2015. To keep EEs motivated, PAMIGA and its partners tested various strategies, such as building an identity as EE (through a local name, a logo, branded T-shirts and hats, etc.), defining targets in a participatory way and monitoring them, setting a performance-based incentive scheme, organizing refresher trainings and peer learning workshops, defining a graduation model, etc. The pilot experience showed that strong support and close monitoring are needed when developing such a model, such as regular refresher trainings and peer-learning activities, frequent interactions with a supervisory organization or person to monitor promotion activities and performance, etc.

Building a market for Energy Entrepreneurs.

EEs tend to perform high in the first months, as they catalyze the low-hanging fruits, from customers close to them and who were already ready to invest in solar. However, they find it more difficult to reach out to other customers, slightly further from their social circles (families, friends, neighbors, church groups, women groups, children school, etc.) or with lower awareness of solar. A risk could

² Some organizations, like Solar Sister or Frontier Markets, have also identified that manufacturers or distributors may not necessarily have the capacity or willingness to supervise a network of last mile agents. Both organizations have thus developed dedicated services to promote, manage, and monitor such networks of last mile solar agents. They have initiated interesting models but are only operational in a limited number of countries today.

³ Similar findings from Mercy Corps & d.light design (2013).

be that they quickly saturate their local market and lose interest in this activity.

Similar to other experiences (Lucey, 2015; Miller et al., 2015), some EEs in Cameroon and Ethiopia have stood out as “super agents”, generating most of the sales. These EEs have showed high motivation and strong innovation and entrepreneurship skills. For instance, in Cameroon, a couple of EEs created stamps with their name and EE function that they used on the flyers and warranty cards provided to clients. Another EE had the idea to use his demonstration kit to light up a wedding ceremony, attracting a lot of attention from the rural community. As mentioned by Lucey (2015), in this type of model, it is not surprising to have a high attrition rate: some entrepreneurs become superstars, while others are active for 3, 6 or 12 months, hit a wall after the “easy market”, and lose interest. Even if one cannot expect to keep all EEs active over the medium to long term, a variety of actions can be taken to help the most motivated EEs expand their market, such as: diversifying the range of clean energy solutions that they can promote, building their marketing and business management skills, making them progressively graduate to more complex solar solutions, or supporting them to develop larger businesses employing staff to cover broader markets.

3.3. THE WAY FORWARD

PAMIGA and its partners are now building on these lessons learned to make the EE model more efficient and sustainable. The vision is, after a first testing phase, to make the role of the most engaged and performing EEs evolve as follows:

- **Direct distribution of solar lanterns and other pico-solutions.** From mere “service providers”, the most performing EEs would become independent entrepreneurs who could manage a small stock and handle cash sales directly with end customers (when the latter do not need a loan). They could receive a loan from the partner RFI to finance their working capital.

- **Installation and maintenance of larger solar solutions.** Performing EEs could progressively upgrade to the installation and maintenance of larger solar solutions, which would be purchased by end customers through Solar Loans obtained from the partner RFI. One step further, one could even envision that the most performing and ambitious EEs could become operators of solar mini-grids at community level.

This strategy would enable EEs to diversify their market and, potentially for some of them, make their EE activity evolve from an extra, part-time job, towards a full-time, profitable business. This evolution would of course require removing the reluctances of partner RFIs to see EEs handle cash sales, adapting the existing selection and monitoring processes to make sure that the risks of fraudulent or irresponsible behaviors are still managed, and identifying the adequate pricing and realistic break-even point to guarantee the profitability of the business for EEs. This is with this vision that PAMIGA is now working on improving the implementation of the EE model in Cameroon and Ethiopia, and expanding it to other countries (Senegal, Benin, Kenya).

“STRONG SUPPORT AND CLOSE MONITORING ARE NEEDED WHEN DEVELOPING SUCH A MODEL.”

REFERENCES

Allet, M. (2016), “Solar Loans through a partnership approach: lessons from Africa”, FACTS Reports Special issue – Decentralized electrification and development

Hamayun, M. (2014), “Pay as You Go: A Sunny Future”, webinar hosted by Clean Energy Solutions Center, 16 September 2014

Linder, K. (2014), “Pay as You Go: A Sunny Future”, webinar hosted by Clean Energy Solutions Center, 16 September 2014

Lucey, K. (2015), “Effective Supply Chains for Energy Access”, webinar hosted by Clean Energy Solutions Center, 27 January 2015

Mercy Corps & d.light design (2013), “Wajir d.light Pilot Evaluation Fact Sheet”, Mercy Corps, Portland

Miller, C., Henseke, G., Davies, D. & Stegbauer, R. (2015), *Trust, Demand and Last Mile Distribution: The Role of Headteachers in Building Africa’s Market for Portable Solar Lights*, SolarAid

Needham, P. (2014), “Pay as You Go: A Sunny Future”, webinar hosted by Clean Energy Solutions Center, 16 September 2014

PAMIGA (2014), *Facilitating Access to Solar Energy through Microfinance: the cases of A3C and UCCGN in Cameroon*, PAMIGA: Paris

Reynolds, K. (2015), “Effective Supply Chains for Energy Access”, webinar hosted by Clean Energy Solutions Center, 27 January 2015

Shah, A. (2014), “Opportunities and Challenges for Rural Off-grid Lighting and Distribution Markets in India”, webinar hosted by Clean Energy Solutions Center, 5 March 2014

Shukla, S. & Bairiganjan, S. (2011), *The Base of Pyramid distribution challenge: evaluating alternate distribution models of energy products for rural Base of Pyramid in India*, IFMR Research, Chennai, India

Stout, C. (2015), “Effective Supply Chains for Energy Access”, webinar hosted by Clean Energy Solutions Center, 27 January 2015

Vermot-Desroches, G. & André, T. (2012), “The BipBop programme: Providing access to reliable, affordable and clean energy with a combined approach of investment, offers and training”, *Fields Actions Science Reports, Special Issue 6*

Winiacki, J. & Kumar, K. (2014), *Access to Energy via Digital Finance: Overview of Models and Prospects for Innovation*, CGAP: Washington D.C., USA