BENIN

ENERGY MICROFINANCE & PAY-AS-YOU-GO

Leveraging PAYGO to increase solar energy access in MFI-solar distributor partnerships

Access to energy remains a key challenge for rural populations in Sub-Saharan Africa. Since 2013, with the financial support of partners such as ADEME, AfDB, OFID and EIB, CIDR Pamiga (formerly PAMIGA) has been facilitating and supporting partnerships between microfinance institutions (MFIs) and solar equipment distributors to promote access to solar energy for low-income populations in Benin, Cameroon, Ethiopia, Kenya, Madagascar and Senegal. In 2018-2019, in Benin, together with ARESS and MyJouleBox, CIDR Pamiga and its partners have developed and tested innovative approaches to integrate the PAYGO technology in MFIs' credit methodologies in order to increase access to solar energy for rural households and micro, small and medium-sized enterprises (MSMEs). This case study presents the background and characteristics of such approaches, as well as the preliminary results and lessons learned, with the aim of inspiring other players in the sector to build on these experiences to expand energy access around the world.

Energy needs in Benin and the role of PAYGO

In Benin, the national electrification rate stands at 34% but falls as low as 16% in rural areas, where the majority of the population lives, meaning that some 7 million people do not have access to electricity (Lighting Africa, 2018). Solar energy products (*pico* lamps and solar kits) thus represent a valid alternative for both off-grid and on-grid populations to access clean and low-cost lighting solutions, but their upfront costs limit households' capacities to purchase them. As a result, solar product distributors have often sought to build partnerships with MFIs to finance the purchase of such products. The rise of the PAYGO financing model, allowing for an on/off control of solar products at a distance to entice clients to repay, as well as for remote and flexible repayments via mobile money platforms to match clients' cash flows, has provided another, groundbreaking option for low-income households to access such solutions. Solar distributors using the PAYGO model have generally built stand-alone companies where end-user financing, distribution and aftersales of solar solutions are all done in-house. Such "one-stop shop" business models, however, require distributors to have substantial capital to sell products on credit and develop lending competencies which are typical of financial institutions.

CIDR Pamiga *is an international NGO which supports disadvantaged regions by facilitating access to finance, energy, health, training, and agricultural value chains through digital solutions adapted to local ecosystems. It was born in 2019 out of the merger of PAMIGA and CIDR.*

ARESS *is a Benin-based solar solutions distribution and installation company. It has provided solar solutions to 40,000+ households and has pioneered the PAYGO technology in the country.*

MyJouleBox *is a French-based start-up focused on developing innovative IT solutions for off-grid energy access. It has developed a proprietary PAYGO platform to commercialize large-scale solar home systems.*

PAYGO and MFIs: from competitors to partners

Unlike in East Africa, the PAYGO sector is still relatively young in West Africa. Among the players spearheading this technology in Benin are ARESS and MyJouleBox, which has developed the PAYGO platform used by ARESS. As an emerging PAYGO solar distributor in 2017, ARESS faced two main challenges: 1) securing sufficient liquidity to sell its products on credit on a large scale, and 2) ensuring appropriate internal skills to assess clients' loan repayment capacities and manage loan collection and delinquency matters. Therefore, contrary to its counterparts in East Africa, which as stand-alone PAYGO companies compete with MFIs providing solar credit, ARESS rather decided to partner with them, in order to tackle such challenges.

As a result, ARESS and MyJouleBox approached CIDR Pamiga and its partner MFIs in Benin – ACFB, PEBCo-BETHESDA and RENACA[1] – to find ways to leverage the PAYGO technology and allow each party to focus on its specific area of expertise : end-user financing and loan collection for the MFIs; solar product distribution, servicing and software management for ARESS and MyJouleBox.

Innovative approaches to integrate PAYGO in MFIs' financing models

Initially, CIDR Pamiga and its partners envisaged to integrate the PAYGO platform developed by MyJouleBox with the MFIs' management information systems (MIS), which would have enabled them to have direct access to the core PAYGO functions, such as the generation and sending of product activation codes to its clients and the collection of loan repayments via mobile money. However, given the existing state of technological development of the partner MFIs, which had still not completed the migration to a centralized MIS allowing for real-time connection between branches, the integration of their systems with an external PAYGO platform was not possible. The team therefore had to think out of the box to come up with alternative approaches to integrate the PAYGO technology in the MFIs' existing financing methodologies and delivery channels.

Through a series of brainstorming sessions and workshops, two potential schemes were developed:

1. **Direct sale of PAYGO solar products by the MFI**, in which the MFI simply acts as a retailer for the solar distributor throughout its branch network, earning a commission on each product sold;
2. **MFI solar credit with PAYGO guarantee**, in which the MFI uses the on/off control of solar products offered by the PAYGO platform as a form of collateral for its loans, sending product activation codes to clients at each loan repayment.

Once developed, PAMIGA and its partners worked with each MFI to adapt the proposed schemes to their specific needs and mode of operation and launch a PAYGO pilot test. For example, ACFB, which was already selling solar products both on credit and in cash to its clients in partnership with ARESS, was frequently approached by non-clients interested in purchasing a solar product on credit, but unwilling to become members of the MFI and open an account in order to access solar credit (as an association, clients must become members of the MFI to request for a loan). ACFB therefore decided to test PAYGO scheme #1 (direct sale of PAYGO products), which would have enabled it to serve such non-clients, while at the same time earning a commission for each product sold. Moreover, it felt this approach was easier to implement, as it did not require having to manage the PAYGO platform and generate activation codes, which could potentially disrupt daily activities. Together with the team, an adapted version of PAYGO scheme #1 was put in place, with the involvement of representatives from the MFI's own women client groups as promoters of PAYGO solar products, supervised by ACFB's loan officers. The scheme worked like this: PAYGO promoters were in charge of identifying and bringing prospective clients to one of the MFI's branches, where front office staff enrolled them as per ARESS's PAYGO procedures, collecting the initial payment and activating the solar product for the client. ARESS was then responsible for collecting the following repayments directly from the client via mobile money. The advantages of this scheme for the MFI were threefold: 1) it allowed it to experiment and familiarize gradually with the PAYGO technology, while transferring credit risk to the distributor; 2) it simplified stock management, as the availability and delivery of solar products to its branches would be entirely under ARESS's responsibility; 3) it created an additional revenue stream for both the MFI and its client PAYGO promoters through the commissions paid on products sold. On the other hand, the benefits for ARESS were to: 1) leverage the MFI's network of 18 branches to sell its products; 2) reduce credit risk by selling products to clients within ACFB's network, hence benefitting from an informal "pre-screening" effect (leading to potentially less risky clients than those acquired through its own retailer shops).

RENACA, another MFI partnering with ARESS, had issues in selling solar products due to its solar loan access conditions, which required providing

1. ACFB is an institution providing financial and non-financial services to women solidarity groups, regrouping more than 80,000 clients. RENACA is the national network of village banks (CAVECA), which provides financial services to 120,000 clients. PEBCo-BETHESA is an MFI serving more than 150,000 clients in urban and rural areas.

a compulsory deposit of 10% of the requested loan amount and securing a guarantor to repay the loan in case of default. These conditions, the same as those requested for any other loan offered by the MFI, were considered too cumbersome by clients interested in solar products, given the considerably lower loan amount needed to purchase such products (in the range of EUR 30-100 for most solar lanterns and kits). As a result, RENACA took the decision to pilot-test PAYGO scheme #2 (MFI solar credit with PAYGO guarantee), leveraging the on/off control function of solar products in order to ease or waive off some of its traditional credit conditions. The PAYGO scheme developed by the team with RENACA thus worked as follows: in order to apply for a loan, clients were only required to open an account at the MFI (if they did not already have one, for e.g. new clients) and pay the standard loan application fee. Upon loan disbursement, MFI staff delivered a code (in person or by phone) to clients to activate their solar product until the next repayment (usually one month). After each successful repayment, clients received a new activation code to continue using their solar product. Such a scheme allowed the MFI to: 1) ease clients' access to solar loans thanks to lighter credit conditions and without increasing credit risk, thanks to the on/off control function; 2) use solar loans to attract new clients (clients must open an account to apply), to whom it could cross-sell other products in the future. For ARESS, the advantage of this scheme was to transfer the credit risk entirely to the MFI, hence reducing pressure on its liquidity and focusing exclusively on its core business (solar product distribution and aftersales).

Preliminary results

It is still too early to assess the results and impacts of the PAYGO schemes described above on the partner MFIs' solar product sales, as the pilot-tests were only launched in late 2019 in a limited number of branches.

Nevertheless, as of early 2020, the PAYGO schemes being tested with the MFIs were already showing some encouraging initial results. More specifically:

- At ACFB, which was testing the direct sale of PAYGO solar products in three branches (PAYGO scheme #1), the scheme had already allowed to increase average monthly solar product sales by 163% in Q4 2019 compared to the previous quarter. The General Manager believes the PAYGO approach is contributing to the MFI's social mission of providing both financial and non-financial services to low-income populations, including the offer of solar products to non-MFI clients;
- At RENACA, which was piloting solar credit with a PAYGO guarantee (PAYGO scheme #2) in five branches, the MFI reported a 40% increase in average monthly solar product sales in Q1 2020 compared to the previous quarter. According to the MFI's project champion, the easing of credit conditions thanks to the PAYGO guarantee has allowed many clients who were previously hesitant to request a solar loan and finally acquire their desired solar product.

As PAYGO solar sector players, ARESS and MyJouleBox claim this initiative has enabled them to better understand MFIs' operations and acquire key skills to design and test new approaches adapted to their specific strengths and weaknesses, for e.g. in terms of credit methodologies or IT capabilities. Both partners are convinced they will be able to customize and replicate the PAYGO approaches developed with other MFIs in the country and abroad.

Testimonies from MFI PAYGO solar clients

"I had been interested in the solar lamps offered by RENACA for a long time, but was unable to meet the credit requirements because I already had a loan. When the new requirements were presented to me this year, I found them very favorable: I only had to pay for my loan application and the solar lamp was given to me right away! I now receive a code at every repayment, which I have been taught to enter into my lamp to keep using it" (Existing client, RENACA)

"I used to light my house with rechargeable flashlights. Thanks to the purchase of a solar kit with TV from ACFB, we now have electricity: my children can study better, we can listen to the radio, watch TV and easily recharge our phones. Even better, I can repay my kit every month via mobile money as if it was an electricity bill and after two years, I will own the kit and my energy will be free of charge!" (New client, ACFB)

Key lessons learned

- ***Technological readiness and challenges***

As in other initiatives with a high level of innovation (mobile money, agent banking, etc.), technology remains a substantial barrier to consider. Due to the absence of a centralized MIS at the partner MFIs, it was not possible to integrate MyJouleBox's platform with their systems to fully exploit the PAYGO technology, as initially envisaged. Moreover, even with the decision to outsmart this issue by creating a dedicated account for the MFIs to access directly the MyJouleBox platform online in order to enter client data and generate activation codes, some MFI branches could still not access the platform due to

poor or erratic internet connection, meaning that codes had to be created at the head office and sent to each branch prior to solar loan disbursements or repayments. CIDR Pamiga and its partners thus had to think out of the box to develop alternative solutions to overcome such challenges and move forward with the project.

- ***Building confidence in testing new models***

Given the innovative nature of the project (linking PAYGO and MFIs), aside from technological challenges, the team had to face a good degree of hesitance and resistance from the partner MFIs at the prospect of introducing the new PAYGO schemes, which they feared could impact negatively on their traditional financing models. For example, ACFB, was reluctant to introduce the management of the PAYGO platform and activation codes in its solar credit activities, fearing it would strongly increase staff's workload and that illiterate clients would not have been able to use the codes, for which reason it preferred to work only with the first PAYGO approach developed (direct sale of PAYGO products). On the other hand, RENACA, despite its interest in the second PAYGO approach (solar credit with PAYGO guarantee) was very hesitant at the idea of replacing its traditional guarantees with the on/off control of products offered by the PAYGO platform, thinking it would not be as effective in motivating clients to repay their loans and despite the fact that clients clearly stated that existing solar credit guarantees were too restrictive for them. All of these required repeated discussions and negotiations with the MFIs to reassure them and build the necessary confidence among all partners to pilot-test the PAYGO schemes developed.

- ***Partnership versus competition***

As mentioned, most PAYGO solar distributors have set up stand-alone business models combining the financing and distribution of solar products in one company. As such, they generally compete with financial institutions providing solar credit. On the contrary, given ARESS's weaknesses as a young PAYGO operator, CIDR Pamiga and its partners have rather attempted to build a model based on partnership between PAYGO and MFIs, proposing a role for the latter to engage with the technology and contribute to its expansion. As the sector develops, with financial institutions becoming more and more digital and PAYGO operators having to raise ever increasing commercial funding to expand their activities and cope with inevitable regulation, it is likely that other operators will be enticed to partner with banks and MFIs.

Summary of PAYGO-MFI integration schemes

PAYGO scheme	Functioning	Benefits for MFI	Benefits for solar distributor	Requirements
1. Direct sale of PAYGO solar products by MFI	- The MFI collects the initial payment from clients and activates the product at the branch, earning a commission for each product sold - The solar distributor collects the following payments from clients directly through its platform	- Additional source of revenue - Gradual familiarization with PAYGO technology, without taking credit risk	- Reduce credit risk by selling products to clients in the MFI's network (pre-screening) - Leverage the MFI's branch network to sell its products	- Availability of staff at branches to promote and sell products on behalf of solar provider
2. Solar loan from MFI with PAYGO guarantee	- At solar loan disbursement and at each repayment, the MFI creates a code on the solar distributor's PAYGO platform and delivers it to the client to activate the solar product until the next repayment (e.g. one month)	- Reduce credit risk thanks to PAYGO technology (deactivate solar products in case of non-repayment) - Ease solar loan access conditions (reduce or waive off collateral requirements)	- Transfer credit risk to the MFI and focus on its core business (distribution & after sales of solar products)	- Internet access at MFI branches to connect to PAYGO platform - Availability of staff to manage the PAYGO platform (generate activation codes)

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CIDR Pamiga
7, rue Taylor
75010 Paris - France
Tel: +33 (0)1 42 01 60 15
contact@cidrpamiga.org