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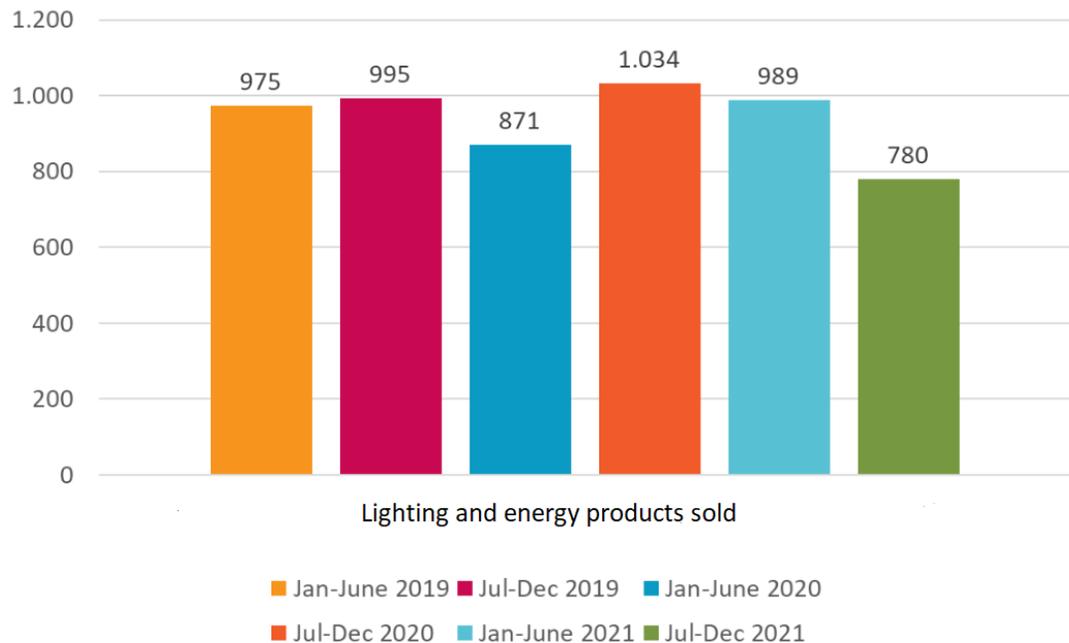
CASE STUDY

Conditional Cash Transfers in Kenya for Off-Grid Solar Energy Cash Plus / Mwangaza Mashinani Programme

Country context

Kenya is the world’s biggest market for off-grid solar devices. More than 1.76 million lighting and energy products were sold by GOGLA affiliates in 2021 (figure 1).¹ Kenya’s off-grid solar market growth has been underpinned by the country’s political stability, economic growth, ease of doing business, consumer awareness campaigns, and a supportive policy environment for the off-grid sector. Market growth has also been enabled by the widespread use of mobile money, which has played a key role in facilitating the pay-as-you-go (PAYGo) business model.

Fig. 1 - Number of lighting and energy products sold by GOGLA affiliates in Kenya between 2019-2021 (thousands)²



¹ Products sold by GOGLA affiliates. For more information, please see GOGLA, World Bank/Lighting Global, Efficiency for Access Coalition (2021), Global Off-Grid Solar Market Report Semi-Annual Sales and Impact Data.

² This includes solar lanterns, multi-light kits and solar home systems.

The Government of Kenya recognizes that, in addition to the grid, off-grid solar solutions such as stand-alone solutions and mini grids must play a key role in achieving universal energy access. The Kenya National Electrification Strategy (KNES) thus envisions 1.96 million connections through standalone solar home systems (SHS) to serve businesses and communities in rural or remote parts of the country.³

While significant progress in electrification through off-grid devices has been made over the past few years, off-grid solar sales have been mostly concentrated in more densely populated

and relatively better off counties. In order to better reach the more remote and vulnerable households, several sector support programmes are now in place, working together with the private sector. The largest such programme is currently the World Bank-funded Kenya Off-Grid Solar Project (KOSAP), a US\$150 million six-year project, designed to extend off-grid solar into 14 underserved counties through a combination of results-based financing (RBF) and local currency working-capital financing.⁴ Other active RBF programmes include EnDev Kenya and REACT Kenya.⁵

Energy Cash Plus / Mwangaza Mashinani Programme

In addition to the above supply side subsidy / RBF programs, the Energy Cash Plus / Mwangaza Mashinani⁶ programme (MMP) aims to reach the poorest and most vulnerable households. It is a pilot-scale, end-user subsidy scheme using conditional cash transfers, to help to bridge the affordability gap of eligible households by (partially) covering their payments to off-grid solar companies.

The programme is implemented by Energy 4 Impact (E4I) and UNICEF, on behalf of their funder, Sida. Phase 1 of the pilot ran from July 2018 to October 2020 and, with 1,660

households reached, exceeded its target of 1,500 beneficiaries. Phase 2 began in February 2021 and is expected to continue until July 2022, targeting an additional 2,000 beneficiaries.

The scheme operates in Kenya's Garissa and Kilifi counties, which are both also targeted by the KOSAP project. These counties were selected based on their relatively low electricity access rates and high poverty levels, consultations with off-grid solar companies, and the presence of UNICEF offices for monitoring and quality assurance.

Detailed Technical Design

Integration with the National Safety Net Programme (NSNP)

The MMP is integrated with the existing cash transfer system under the Government of Kenya's National Safety Net Programme (NSNP). The NSNP provides bi-monthly cash transfers to orphans and vulnerable children (CT-OVC),

persons with severe disabilities (CT-PWSD), older persons (OPCT), and those under the hunger safety net programme (HSNP). These cash transfers are being managed and disbursed by the Kenyan government, supported by UNICEF, Sida, the World Bank and other development partners.

³ Government of Kenya (2018), *Kenya National Electrification Strategy: Key Highlights*.

⁴ For more information, please see <https://www.kosap-fm.or.ke/>

⁵ For more information, please see <https://endev.info/countries/kenya/> and <http://www.aecfafrica.org/sites/default/files/react-rbf/2020-12/REACT%20RBF.pdf>

⁶ Mwangaza Mashinani means 'Light for marginalised areas' in Swahili.

The MMP leverages the NSNP by providing a conditional cash top-up to selected NSNP beneficiaries specifically targeted by the MMP. This conditional top-up is meant to enable the beneficiaries to buy SHS, which are offered at a commercial price to reduce market distortion.

Welfare Committees (BWCs) including representatives from the target communities were created in both counties (seven in Kilifi and nine in Garissa). These Committees support the county TWGs with beneficiary selection, repayment follow-up, and handling of complaints.

Coordination

Implementing the programme entails extensive coordination between national and county-level government agencies, SHS suppliers, and the organisations involved in cash transmission for the NSNP. It also involves working in target communities to promote the scheme and to help client households engage with it effectively.

To streamline coordination, Technical Working Groups (TWGs) were established at both the county level and the project level (Figure 2).

County Level

The county TWGs primarily provide support in beneficiary selection. Additionally, Beneficiary

Project Level

The Project TWG, consisting of Sida, UNICEF and E4I, supports overall project management. The National Steering Committee has direct oversight over the project, and includes national ministries and bodies such as KEREA, the national renewable energy association, as well as Sida, the World Bank, and Power Africa. While Sida is the sole funder of the programme, the World Bank and Power Africa provided Sida and UNICEF with technical support during the design of the project. The committee’s mandate is to provide strategic guidance to the project to help it in achieving its goals and to disseminate information to other stakeholders.

Fig. 2 - Governance structure



Targeting and verification

A special focus of the MMP is to reach orphans, disabled individuals, and elderly people who are part of the NSNP. To participate, households need to be enrolled in the CT-OVC, OPCT or CT-PWSD programmes under the NSNP, and need to meet at least one of the following ‘vulnerability criteria’, that are specific to the MMP:

- a. Household with children under 16 years (preferably 9-16 years)
- b. Household with at least one girl under 14 years
- c. Household of four or more people
- d. Household includes someone with severe disabilities
- e. Household includes someone with any chronic illness
- f. Household headed by a woman or child
- i. Household headed by an elderly person (70+ years)

People who are part of the CT-OVC, OPCT and CT-PWSD programmes are registered through the Social Assistance Unit in Kilifi and Garissa counties. At the start of the MMP, the county TWGs selected specific areas in both counties. In these areas, the E4I team visited each NSNP registered beneficiary and conducted a questionnaire to determine the eligibility for enrolment into the MMP. The final list was then checked by the area chiefs to make sure each beneficiary matched (at least one) of the vulnerability criteria.

Product and company selection

In the pilot phase, d.light and BioLite were selected to participate in the programme through an open tender. To be eligible, companies had to sell PAYGo-enabled SHS with at least three lights, a battery and charging outlets. The product had to be VeraSol quality-verified, and companies needed to provide after-sales service. The products sold in the pilot phase were BioLite’s Solar Home System 620 and d.light’s Solar Home System D100. In Phase 2, d.light is the only participating company, selling the D150 system.

Cash transfer payment mechanism

Pilot phase

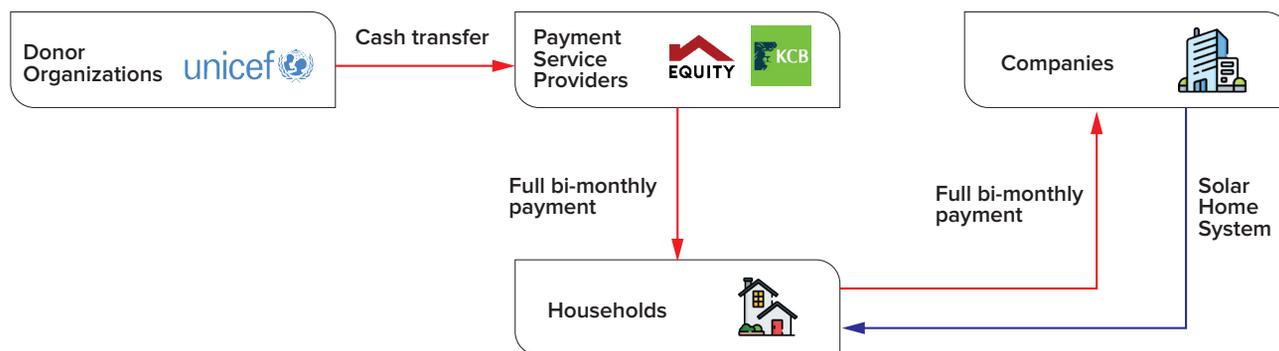
In the pilot phase, all the money paid to the SHS suppliers passed through the hands of the beneficiaries. The funds were transferred from the donor to the Payment Service Providers (PSPs), Equity Bank, and Kenya Commercial Bank (KCB), which then transferred the money to the beneficiaries.

At the start of the payment cycle, a down payment for the SHS of US\$10.40 was required from the end-user. The donor provided US\$8 to the beneficiary household towards this payment, while the household contributed US\$2.40 from their funds, as a mark of their commitment. The beneficiary then received six bi-monthly payments of US\$20 from the PSPs to make payments for the product, to pay off (total cost: US\$130.40) (Figure 3) either the BioLite’s 620 or the d.light’s D100 system.

To incentivise the participating off-grid solar companies, a guarantee was in place during the pilot phase that covered 85% of the outstanding value of the SHS in case of customer default. The guarantee was provided by UNICEF to the suppliers directly. Without this guarantee, companies found it too risky to participate in the programme.

Fig. 3 Subsidy distribution and flow of funds in pilot phase

Pilot phase	Beneficiary down payment 1x to Supplier	Donor down payment to Beneficiary 1x	PAYGo instalment 6x, every 2x months	SHS total cost
		Beneficiary to Supplier after receiving funds from Donor	Beneficiary to Supplier after receiving funds from Donor	
	US\$2.40	US\$8.00	US\$20*6 = US\$120	US\$130.40



Phase 2

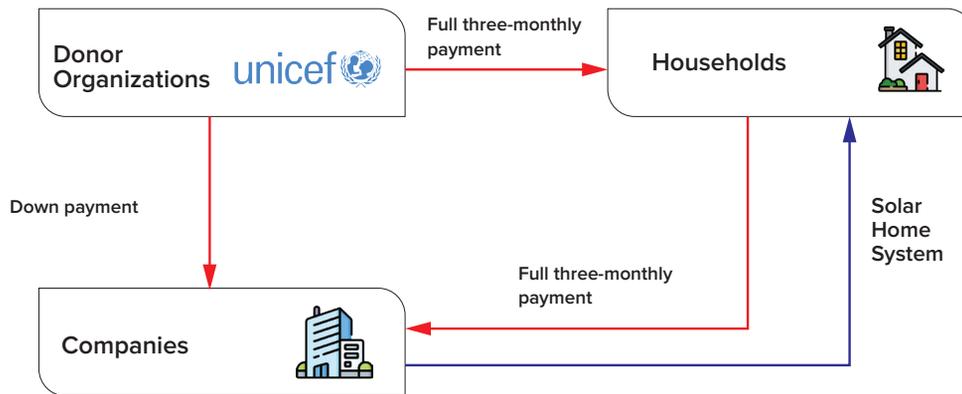
In Phase 2, the project is working with d.light offering the D150 system and the payment cycle has been modified as a response to frequent NSNP payment delays in Phase 1. Because cash transfers from the MMP in Phase 1 were combined with NSNP cash transfers, this automatically delayed disbursements when the government's cash transfers were delayed. To improve efficiency, it was decided that the scheme would no longer utilise the NSNP payment structure, but only use the NSNP database for targeting. Cash is now directly transferred from UNICEF to the beneficiary via M-PESA, the leading digital payment method in Kenya. An additional change from Phase 1 is that beneficiaries no longer have

to pay the commitment fee of US\$2.40, as people were often unable to make this payment. The cost of the SHS in Phase 2 is fully paid for by the donor (figure 4).

In Phase 2, UNICEF pays a down payment of US\$45.21 to d.light and US\$12.07 is sent directly to the beneficiary, who then pays this down payment to d.light during the collection and activation of the SHS. The remaining US\$93.40 is transferred by UNICEF to the beneficiary, who pays off the system in two instalments of US\$46.70 three months apart. The 85% guarantee of the outstanding value in case of default remains in place.

Fig. 4 Subsidy distribution and flow of funds in Phase 2

Phase 2	Donor down payment 1x to Supplier	Donor down payment 1x to Beneficiary	PAYGo Instalment 2x, every 3 months	SHS total cost
		Beneficiary to Supplier after receiving funds from Donor	Beneficiary to Supplier after receiving funds from Donor	
	US\$45.21	US\$12.07	US\$46.70*2 = US\$93.40	US\$150.70



Impact

Socio Economic impact

In the pilot phase, the programme exceeded its target of 1,500 households, reaching 1,669 households, of which 64% were headed by women. Impact surveys showed children had increased study hours during the evening, people

felt safer at night and households generated additional income - for example by charging their neighbours phone for a small fee. Households also felt a strong sense of ownership towards the product, resulting in well-maintained systems.

Lessons learned

Overall, the pilot was widely well received by households, off-grid solar companies, the Ministry of Energy and the Ministry of Labour and Social Protection. There were, however, a few challenges as well as lessons learned.

Coordination

- In the pilot phase it was envisaged that the National Steering Committee (NSC) would be chaired by the Ministry of Energy (MoE) to provide oversight and support to the project and county TWGs. The MoE was to convene programme meetings and ensure that the project was aligned with national government policies and regulations. However, the

MoE was not as involved in the project as anticipated at the planning stage. This was due to the misconception by the MoE that the MMP is more closely connected to the Ministry of Labour and Social Protection because of the cash transfer element and that they would play a greater role overseeing the project. In Phase 2, UNICEF is trying to enhance participation of all the members and to ensure a strong link between the NSC and county TWGs.

- The county TWGs on the other hand, were very active, with strong commitment from participants. In Phase 2, the project continues to work closely with the county level energy departments.

Participation

- Before the start of the pilot phase, E4I started an awareness campaign to let the target communities know about the programme. This included public gatherings organised together with off-grid solar companies, and the beneficiary welfare committees helped to explain the programme and the repayment mechanism to households. Despite this campaign, there was a dropout rate of 25% in the pilot phase; customers who were registered as potential beneficiaries but did not make a down payment to acquire a SHS. The main reason for this was a misconception among beneficiaries about possible consequences in case of default. People were worried that their properties would be confiscated in case they would fail to make payments. To solve this issue, E4I changed its awareness raising strategy by involving all the key stakeholders at the county, sub-county, and village levels in Phase 2. Local village leaders, who are trusted by the beneficiaries, are now playing a greater role in the second phase, as they hold village meetings to provide information about the project. At these meetings, beneficiaries can ask questions to their own leaders which has improved information flow and participation.
- Despite the solar home systems being plug and play, a number of households found it difficult to install the product in Phase 1. Some households took their system home but did not open or use them. In Phase 2, d.light is training 'community champions' who assist with the solar home system installations and basic maintenance. This service is offered to beneficiaries at no cost.

Payments

- In both phases, companies shared repayment data with UNICEF and E4I on a regular basis to assess repayment and default rates. In the pilot phase, payment verification data was

collected from different sources, including paper-based enrolment records and excel spreadsheets, which made reporting and verification a time-consuming process. In Phase 2, payment verification is easier as PSPs are no longer involved and payments are now made through M-PESA and the mobile money transfer platform used by UNICEF's finance department.

- The repayment rate across all households was 70% in the pilot phase. When the household did not (fully) repay their system, this was often because a beneficiary died, lost morale due to the payment delays, or moved away. The latter was especially seen in Garissa County, where several beneficiaries are pastoralists who are leading a nomadic lifestyle. The direct cash transfer from UNICEF to the beneficiary via M-PESA in Phase 2 solves for the payment delays under the NSNP in the pilot phase.
- During the pilot, interactive voice response (IVR) calls and text messages were used to remind households about payments, although these were excluded in Phase 2 as they did not prove to be very effective. Instead, physical meetings and individual follow-up right before and after cash transfers have proven to work much better.
- Some households found it challenging to use their mobile phone to receive and transfer the payments for their solar home system, often because of low literacy levels. Because Phase 2 relies heavily on the use of M-PESA, E4I started training households to use M-PESA and transfer the payments.
- The solar home systems require maintenance and the lithium batteries will need to be replaced after a few years. Households will need to pay for this maintenance themselves, and a new battery can be costly. E4I is running awareness campaigns to try and make sure households save money for maintenance.