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Integrating social protection and market-based delivery to accelerate low carbon energy access: Lessons from Malawi

Benjamin T. Wood

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SUMMARY

A Concern Universal pilot project is trialling the integration of social protection schemes with market-based delivery approaches as a way to accelerate pro-poor, off-grid solar energy access in Balaka District, Malawi. This policy brief sets out research undertaken with the aim of evaluating progress made by the pilot project in terms of its impact on vulnerability reduction and the micro solar market. Findings suggest that the project has both helped to reduce the vulnerabilities of ultra-poor, labour constrained households and catalysed the micro solar market. Key lessons for policy

Key Messages

1. Ownership of solar lamps has translated into multiple, highly valued development and climate change adaptation benefits.

2. Linking social protection schemes with market-based delivery can provide an innovative way to help advance pro-poor, off-grid low carbon energy access.

3. Successful integration is more likely when energy access inputs and/or technologies are affordable and well-aligned with local development priorities.

4. Learning-by-doing approaches should inform scale-up of the pilot project in Malawi and elsewhere.

Extremely low energy access conditions patterns of underdevelopment across sub-Saharan Africa[1]. In Malawi, 10% of the population are connected to the national electricity grid, a number that falls to just 1% in rural areas[2]. Typically, rural households use battery-powered torches, candles, kerosene and open fires as their primary sources of lighting. However, these methods, to varying degrees, are carbon-intensive, expensive, provide poor quality light and/or contribute towards indoor-air pollution[3]. National 'energy access' policy approaches have so far failed to improve the situation[2]. In this context, fresh, innovative policy thinking is required.

In Balaka District, Concern Universal has received funding from Irish Aid to trial the integration of market-based solar energy access delivery and the Malawian Government's Social Cash Transfer Programme (SCTP). Under the SCTP, households in Malawi that are classified as both 'ultra-poor' and 'labour constrained' qualify for small, bimonthly cash payments to help sustain their livelihoods[4].

Working with solar social enterprise Sunnymoney, Concern Universal has established and trained a network of local sales agents throughout Balaka that are responsible for selling Sun King Pico solar lamps[5]. Each sales agent operates within a 'cluster' comprising up to three group village areas. Lamps retail at *c.* US$ 8.50 each and, for every lamp sold, the sales agent receives 15% of the lamp retail price in commission. Each lamp sold comes with a warranty that lasts for 2 years. Sales agents also assisted with the distribution of 8,500 free solar lamps to SCTP households during 2016.

Using the interest generated in communities on distribution days, it was intended that sales agents would be able to leverage additional sales. Concern Universal envisage that distributing free lamps to SCTP households will help establish rural value chains for energy technologies and reduce the vulnerabilities of ultra-poor, labour constrained households. This policy brief sets out the results of research undertaken with the aim of evaluating progress made by the pilot project in terms of its impact on vulnerability reduction and the micro-solar market.

Research approach

Data collection took place between 22nd September and 12th October 2016. Surveys were used to gather descriptive data from 332 SCTP households who have received a free solar lamp from Concern Universal in four case study clusters: Maliwata, Kankawo, Mbawa and Kwitanda A. To supplement and validate data obtained through household surveys, sales agents active in each case study cluster were interviewed. Focus group discussions with sixteen additional sales agents enabled further understanding of sales agents' perspectives on the pilot project.

A mixed methods approach that drew upon qualitative and quantitative approaches was used to analyse the data. Univariate statistical techniques were used to analyse amalgamated data and mean, median and mode calculations were made to discern key trends. Survey and interview transcripts and focus group notes were analysed using content analysis methods.

Summary of key findings

1. **Solar lamp ownership is translating into multiple, highly valued development and climate change adaptation benefits**

SCTP households attributed a wide range of highly valued development benefits to ownership of Sun King Pico lamps. On average, each SCTP household reported experiencing 2.81 benefits as a result of lamp ownership. Reduced expenditure on non-solar forms of household lighting was the most often reported benefit (by 202/332 households), followed by increased security (by 147/332 households). Survey respondents considered that they are less at risk of attack and home intrusion by dangerous animals, insects and other humans during the night. 104 survey respondents considered that solar lamps have unlocked education benefits because they have enabled children to study at night. A range of other economic and social development benefits were also reported. Three sales agents agreed that, when SCTP households invest money saved as a result of lamp ownership in village savings and loans groups, financial gains can be multiplied.

Solar lamps can also contribute to climate change adaptation benefits. Respondents suggested that lamps will help to deal with difficult weather conditions. For instance, 32 respondents suggested that, while rain and windstorms often prevent paraffin lamps and wood fires from providing light, solar lamps will provide light even in times of heavy rains and strong winds. 43 respondents considered that this will help them to deal with and avoid property damage and personal injury caused by rain and wind storms in the future.

2. **Lamp ownership also creates some negative side-effects**

Despite the largely positive impact of solar lamps, some negative side-effects were considered to have resulted from the distribution of lamps to SCTP beneficiaries. 17 survey respondents suggested that incidences and fear of theft had increased following the distribution. 18 considered that SCTP households were the subject of jealousy from other households that had not received the lamps, with 10 suggesting that that they had been discriminated against by village authorities and not included in local development programmes since receiving lamps. Four sales agents that participated in focus group discussions verified their testimonies.

3. The overwhelming majority of SCTP households have retained free lamps

318/332 SCTP households surveyed reported that they had retained solar lamps following their distribution within study clusters. With the exception of those in Kwitanda A, these households verified their testimonies by showing research assistants their solar lamps. In Kwitanda A, SCTP payments were being made to households at a central location within the cluster during the period when research was taking place. Consequently, the only way to conduct the research was to survey people as they waited to collect payments, making it impossible for research assistants to verify respondent's testimonies.

There were only isolated cases of lamp sales (1 respondent) and theft (eight respondents). 7/8 respondents who reported that their lamps had been stolen were elderly and five sales agents that participated in focus group discussions considered that elderly lamp recipients have been targeted by thieves.

Respondents often attributed decisions to retain lamps to the benefits that they associate with ownership. It also was found that district government staff and sales agents have been telling SCTP households that they will not be considered to receive any future development resources if they sell their solar lamps.

There were no reported instances of where lamps had ceased to function. However, there was patchy knowledge and understanding of the two year warranty that Concern Universal guarantees. This could compromise activation of the warranty by SCTP households in the event that their lamps cease to function in the future.

4. Free lamp distribution has helped to catalyse the micro solar market

Sales agents that were interviewed in study clusters and that participated in focus group discussions unanimously agreed that the free distribution of solar lamps to SCTP households has helped enhance local awareness of lamp benefits in their respective clusters.

12 out of 15 sales agents who had begun selling lamps in clusters during the months prior to the free distribution to SCTP households considered that their monthly sales had increased as a result. One notable testimony came from a male focus group participant who reported that lamps were distributed to SCTP households in his cluster in July. In the five months preceding the distribution he sold 32 lamps but in the 3 months following the distribution he had sold 102 lamps. A female focus group participant reported that, in the 5 months preceding distribution in her cluster (also July), she had sold just 3 lamps but had been able to sell 37 lamps in 3 months since then.

5. Lamp sales are constrained by demand-side challenges

Despite that the free distribution of solar lamps to SCTP has increased awareness and demand for lamps, sales agents reported that ongoing challenges constrain lamp sales. 10 sales agents who had benefitted from increased sales since the distribution considered that financial poverty had prevented them from increasing sales by a greater magnitude. Typical yearly household incomes in Balaka are estimated to range between US$ 18.6 and US$ 45.50[6].

Financial poverty problems are compounded by the relatively high upfront costs of Sun King pico lamps (US$ 8.50): *"lamps are expensive and because of that there is low adoption"* (male focus group participant). 29/66 SCTP households in Maliwata, 45/83 SCTP households in Kankao, 62/81 SCTP households in Mbawa and 72/102 SCTP households in Kwitanda A considered Sun King pico lamps to be unaffordable.

Three sales agents that participated in focus groups suggested that targeting village savings and loans groups can help overcome affordability issues and drive sales. The top performing sales agent considered that

trading solar lamps for non-cash assets can open the micro solar market to the poorer households.

As well as financial poverty, low awareness of where solar lamps can be purchased was also found to be constraining demand amongst SCTP households. 51% of SCTP household survey respondents reported having no idea of where they could buy an additional solar lamp. 12 sales agents participating in focus group discussions believed that local people's low trust in them was also stifling demand. Low trust reportedly exists because a) local people do not believe that sales agents are *"official Concern Universal distributors"* (male focus group participant) of solar lamps, and b) sales agents have limited means to prove otherwise.

6. Supply-side challenges

All sales agents that participated in focus group discussions considered poor access to investment capital to constrain their abilities to sell lamps. This is particularly troublesome because *"most of the villagers want to see the lamp that they are going to buy before they pay for it"* (female focus group participant). Seven sales agents considered that, as a result of financial poverty, households prefer to pay for lamps in instalments instead of paying the full lamp cost upfront. Yet, sales agents' financial difficulties mean they cannot afford to offer a payment-by-instalment option.

All sales agents considered limited access to affordable transport to and from Concern Universal's Balaka office (where lamps can be purchased) to be problematic. Six sales agents complained that they have found lamps to be out of stock upon arriving at Concern Universal offices to purchase lamps. 12 sales agents reported that poor access to transport within clusters also hinders their ability to sell lamps. Selling to local people who live long distances away from sales agents' homes was considered to be particularly problematic.

Lessons for policy and practice

Findings suggest that Concern Universal's efforts to integrate solar energy access and Malawi's SCTP have both helped to reduce the vulnerabilities of ultra-poor, labour constrained households and catalyse the micro solar market in Balaka. The pilot project remains in its early stages. However, early evidence suggests that **linking social protection schemes with market-based delivery could provide an innovative way to help advance low carbon energy access**. It could also help deliver non-energy related technologies and inputs for building resilience. The approach shows particular promise as a way to enhance energy access through decentralised, off-grid technologies in countries with large-scale social protection programmes where centralised grid-extension is yielding limited progress.

Early study of the pilot project suggests that successfully integrating market-based interventions and social protection schemes may be contingent on two factors**: aligning inputs and technologies with local development priorities**; and **ensuring that the prices of these inputs and technologies are affordable**. Alignment between the benefits provided by solar lamps and local priorities meant that lamps were both highly valued by SCTP households and in increasing demand amongst non-SCTP households within case study clusters. However, the perceived unaffordability of Sun King Pico lamps is constraining demand for them amongst households, despite growing awareness of the highly-valued benefits that lamp ownership can provide. Underpinning future efforts to link social protection schemes and market-based approaches with rigorous formative research will be crucial to ensure that inputs and technologies for enhancing resilience are priced at affordable levels.

Findings also point to lessons for strengthening the pilot project in Balaka:

- **Building links with village savings and loans groups** could help **multiply solar lamp benefits** and **enhance demand** for lamps;
- **Innovative payment methods** (e.g. payment by instalment, non-cash payments) may be crucial for **unlocking pro-poor sales**;
- **Providing sales agent with means of identification** (e.g. ID cards, uniforms) could help them to prove their credentials and **build trust with local people**;
- **Reducing sales agents' transport costs** would **lessen supply bottlenecks.** Encouraging sales agents in neighbouring clusters to form transport associations, whereby they pool transport costs, could be a cost-effective solution;
- **Engaging traditional authorities** to help them better understand and promote the aims of the free lamp distribution programme may **reduce discrimination against free lamp recipients.**

These lessons point to the importance of adopting **learning-by-doing approaches**. Linking social protection schemes with market-based delivery is a novel approach for enhancing low carbon energy access that has received limited scrutiny. The effectiveness of this approach will be conditioned by the contextual circumstances in which implementation occurs. **Flexible** service delivery approaches that encourage **ongoing refinement** in response to monitoring and evaluation processes would be sensible. Strong collaborations between sales agents and field staff could help good sales practices to be multiplied and mainstreamed within project planning and implementation processes.

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About the Author

Benjamin T. Wood is a Postdoctoral Researcher at the Sustainability Research Institute, University of Leeds.

For more information, please contact:

Benjamin T. Wood
Sustainability Research Institute, University of Leeds, Leeds, LS2 9JT
ee12btw@leeds.ac.uk

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