

**Final Report:**

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**Project Title**

**Kenyan Solar Lending**



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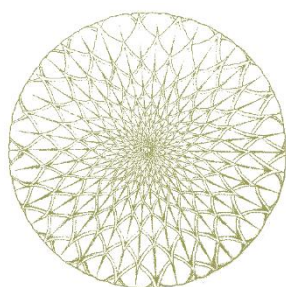
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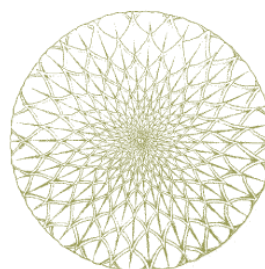
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## 1. Summary

*Maximum of 1 page, containing the most relevant information; particularly:*

This project was implemented to provide a reliable independent (of manufacturers) financing payment system. It was also implemented to increase the sales of Solar Home Systems which provide reliable clean electricity for families living off grid.

The project implemented the pay as you go payment system and established a loan portfolio to finance the growth of the SHS. Prior to the project there was no lending activity and there was no independent pay as you go system.

*Why was this project implemented (Needs in the partner country)?*

Kenya was selected as a country to work in because of reliable local partners and the social needs in the country. SunTransfer established their solar company in Kenya several years ago and had a reliable track record. George Petty of Venture South had also worked in the country previously and could count on the support of his former boss (who is Kenyan) to provide additional contacts and for financial oversight. George's experience in Kenya and developing financial products for rural Kenya helped ensure the success the solar product and of the lending program overall.

Growth of financing increases the sales of Solar Home Systems and provides reliable electricity for families living off grid. There are financial, health and environmental reasons why this is good for families in general and society as a whole. Kenya was also selected because of the need in the country. We are proud that we have contributed in a small way to addressing the needs for rural Kenyan families and to reduce greenhouse gases. We will continue our work to serve rural families and reduce CO2.

*What was implemented (project's content)?*

The PayControl system and a loan portfolio were implemented for this project. Both are ongoing and will continue going forward.

*How was the project carried out and what objectives have been achieved?*

The project was implemented through the partnership between Venture South Kenya (Bi-ashara na Fedhu) and Sun Transfer Kenya. This partnership worked very well thanks to the organization's complementary activities and dedicated staff. All the major objectives were achieved. Specifically:

1. Providing more people with clean and reliable solar power
2. Establishing the payment system PayControl
3. Growing the microfinance sector with a partnership model to finance SHS

*What do you foresee as further actions to be undertaken?*

Venture South's next steps are to raise additional capital and grow the loan portfolio. The project was very successful in demonstrating the viability of the loans and the overall market potential. The greater objective is to raise a fund which can serve the wider renewable energy market. Paygo technology and ongoing financing are the two critical elements to ensure continued growth of the sector.

## 2. Starting Point

*Short description of the initial situation at the project's start.*

Prior to this project STK was using an early stage payment system, but a reliable payment system which is not manufacturer dependent was necessary. Previous payment systems available in the market place were only available in conjunction with a particular product of one producer. This was very troublesome for any company, which sells a SHS via instalment credit. A change to another producer takes immense costs and much effort – fatal in a market where new providers appear and new technologies are developed regularly.

The development of PayControl allows lenders and solar companies to become independent and more flexible in their choice of producers. The payment system can be customized for easier use. As the lender gains more flexibility, the end-user/customer also benefits. As activities grow, it allows for diversification of activities to lend to small and medium businesses, a neglected segment of the market.

When the project began, SunTransfer was working as a solar company, selling their products through a limited number of solar centers. They were using a payment system which was developed with prior Repic support. Venture South lending had not yet begun, but the company existed and activities were ready for implementation. In short, the project was ready for implementation and was just waiting for the REPIC financing.

### **3. Results**

*Description of the project's original objectives.*

- Objective 1:

Provide more people with clean and reliable energy through solar power and at the same time create more job opportunities (especially in rural areas).

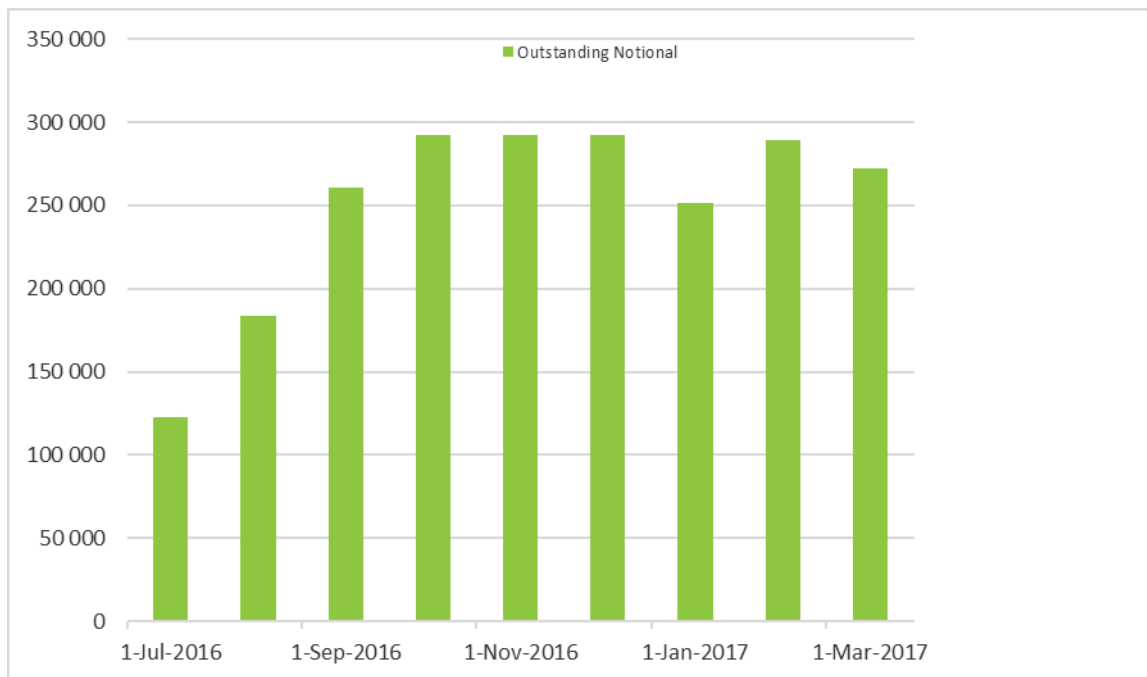
- Objective 2:

Establishing and adjustment if necessary of an instalment system being used independently of a particular producer: Further developed version of SunControl (and the accompanying management software), PayControl and its application in the real market situation with Venture South.

- Objective 3:

Moving forward in the microfinance sector with responsible environmental technologies within developing and poor countries (starting with Kenya) through establishment of a cooperation model (close relationships, where everyone has specific roles and interests with which they are satisfied)

The graph below shows the Biashara na Fedhu outstanding loan portfolio through March 2017. The portfolio dipped in January 2017 as the creditor requested we make a partial repayment to demonstrate our ability to pay. A second small payment was made in March. New transfers to Biashara na Fedhu were made in April and are expected at the end of May. The portfolio has not yet grown further because lendahand.com is requesting there be a stronger equity base before expanding the lending. We are talking with potential guarantors and other funders to expand the lending.



## 4. Project Review

### 4.1 Project Implementation

*How was the project carried out (approach, partner and project's main steps)?*

The project was highly reliant on the partnership and respective responsibilities of the partner organizations. Venture South provided the financing and Sun Transfer provided the solar products and payment system. This approach allowed both organizations to focus on their respective areas of expertise and proved highly successful.

ST developed their code for PayControl and implemented it for payments. ST further expanded their solar centers and increased their sales. VS raised capital and extended loans. This allowed ST to double their sales in three months. VS monitored the loans and reported to investors.

*Did the project's main objectives have to be modified during the course of the project? Describe any of the modifications made.*

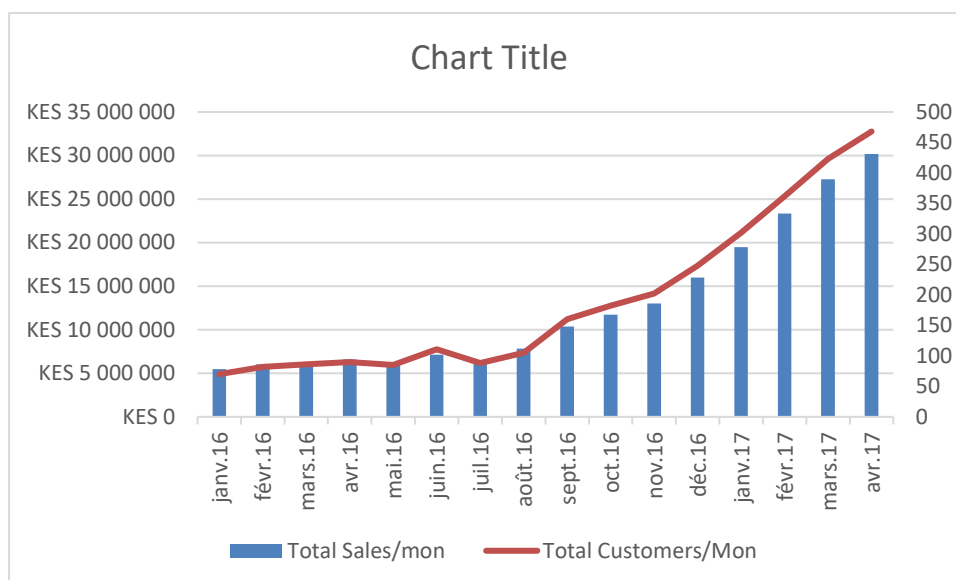
The projects main objectives did not have to be modified.

### 4.2 Achievement of Objectives and Results

*To what extent were the objectives achieved? Which results were achieved?*

The main objectives were all achieved.

The overarching goals were to grow sales of SHS using the pay as you go technology and this was achieved. The graph below shows the sales growth. The point of inflection comes with the loans. There is a lag of a few months as STK had to buy more product and have it shipped to Kenya before sales could begin.



### **Multiplication / Replication Preparation**

*What preparatory work was carried out for the multiplication and replication within the project's framework?*

The loan product and technology were both designed for replication. PayControl, allows for control of SHS and can be customized and be used flexibly by any provider. The system is not based on SIM Card supported technology, but on a CODE-system, which means the customer receives after his/her payment an activation code, which has to be entered. This payment system is easily replicated. ST is talking with their partners in Uganda, Nigeria and Cambodia for replication.

The loan product can also be easily replicated. Venture South speaks about it in conferences and is talking with solar suppliers in the Philippines to replicate the loans in that country. VS regularly has requests to expand their solar lending in other countries and is exploring those opportunities now.

### **4.3 Impact / Sustainability**

*Which impacts were already noticeable up to the end of the project?*

The immediate impact was on STK sales of solar products. They doubled in the first three months thanks to the additional funding. The goals of the project were also met.

- We raised € 383,800 to date from lendahand. These funds have all been used for lending and we expect this to continue. Added to this are the Repic funds which were not used for overhead costs.
- We continue to raise funds from lendahand demonstrating the projects sustainability
- Over 10 solar centers are operating
- Over 1,944 clients are using PayControl
- Over 3,000 units have been sold
- Over 16 jobs at STK were created. Biashara created 1 full time job and part time jobs with the outsourced accounting.
- The loan portfolio is generating income and covering most costs. We need a slightly larger scale to be comfortably sustainable. The loan program itself generated income from July which has helped to offset costs.

## 5. Outlook / Further Actions

### 5.1 Multiplication / Replication

*What are the next planned steps?*

VS is looking to expand its loan portfolio with ST and other solar providers. PayControl is looking to expand their payment model to other companies.

Raising capital takes time. Investors are interested in the solar market, but cautious because it is a new market with limited track record. Many creditors look for a 10 year industry track record and Venture South has had to remind them that no such track record existed when microfinance track record existed when that lending began.

A second important factor is the equity base of the lending institution. Most creditors lend based on a multiple of the borrower's equity base. Lendahand.com (LaH) uses a multiple of 4 times equity to arrive at its limit of €300,000 (the multiple is not exact). It is therefore important for Biashara na Fedhu to increase its equity to expand its lending.

Venture South is doing two things specifically to expand its lending. We consider that raising equity will be a constant problem. If we raise \$1million, we will immediately require additional equity to grow further. In the short term, we are putting in place a guarantee (Africa Guarantee Fund) which will allow us to increase our multiple with LaH. We are also putting in place a buy back of bad loans from StK as well as a guarantee from Venture South International. Both of these will allow Biashara to increase its borrowing from LaH and therefore its lending. In the medium term, we are going to use Biashara as a management company where it would source and manage loans from STK, but the loans would be held on others' balance sheets. This is more of a fund model and allows us to get out of the reliance of equity on the balance sheet to grow. We are talking with a London based company which buys receivables and Quadia which wants to establish an energy fund.

*What is being done to promote multiplication / replication?*

Both companies wish to expand their activities to other countries in East Africa. Continued funding is a major factor in their ability to do this. VS has identified other solar partners and is looking to raise additional capital. VS has received requests from four solar companies and one biogas company to do this lending. We are now talking with a solar company in Tanzania and a biogas company in Kenya to do pilot loans with them. These pilot loans will be important to expand the portfolio.

The solar market in East Africa is growing very fast. There are a few large players who have succeeded in breaking through and raising significant amounts of money. Most of their product is for lower end products while there is strong demand for higher end SHS which STK sells. Venture South sees its role as financing suppliers such as STK which have good products and after sales service. Our financing will help a few companies with good products establish their place in the market.

PayControl is talking with solar companies in Nigeria, Cambodia and Uganda about these companies using the system. The Nigerian company is currently testing and looking to raise additional capital. The Cambodian company is very interested in using the technology, but requires funding to expand. The Ugandan company is testing the technology and ST is waiting for feedback. These three companies give further credibility to the technology and were helpful in refining it by giving their feedback during development.

*Which hurdles need to be overcome in order to have successful multiplication / replication?*

The primary hurdle for VS is to raise additional capital. VS already has three companies who are interested in using the VS loan products to expand sales to their clients.



## **5.2 Impact / Sustainability**

*What are the expected sustainable effects (environmental, socio-economic aspects, CO2 relevance, resource efficiency, etc.)?*

There are numerous sustainable effects from this project:

- The use of the solar products ensures that kerosene will not be used for lighting, thereby reducing future CO2 emissions. It is very hard to say exactly how much CO2 was not burned thanks to this project. We can however estimate. With 3,064 systems sold to date and families burning an average of 6 – 7 litres of kerosene per month, we can assume 18,384 – 21,448 of litres not burned each month, which previously were burned. At 21.37 pounds of CO2 per gallon<sup>1</sup>, and 3.785411784 litres per gallon, 6 – 7 litres equals 103,784.24 – 121,081.62 pounds per month of CO2 not burned.
- Once the loans are paid off (18 months) there is net income to the families
- It is hard to quantify specific health benefits thanks to this project. However, the health risks of kerosene are well known and replacing them with a SHS suggests in Significant benefits to the 3,000 families which purchased the SHS during the project period.
- The loan program is sustainable and can continue, thus expanding the number of people served
- Kerosene currently sells for Kshs 65.28 (CHF 0.62229) per litre. This cost savings is now used for loan payment. However, after the loan is complete, that is pure savings for the client. Some clients earn additional money for charging cells phones to their neighbours. Actual earnings vary by family and local needs. It can however provide additional income. There are also often savings from reduced health costs. The kerosene smoke often creates respiratory problems which requires medical attention and therefore bills.
- The resources used to finance these activities will continue to generate impact going forward
- The simple PayControl payment system is easier for clients and saves them from having to deposit in banks. This saves them time and money

An example of a client is here:

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<sup>1</sup> <https://web.archive.org/web/20041101051713/http://eia.doe.gov/oiaf/1605/coefficients.html>



Chebet Janet Langat lives in Chepsir village in Kericho county in Kenya. Together with her children she uses *koroboi*, a locally fabricated kerosene lamp for lighting especially the living room. The lamp is her main source of lighting both for her to do the evening chores as well as for her children to study at night and early morning. This is very costly to her and threatens her children's health with respiratory infection and visual problem.

Upon installation of the solar home system she looks forward to better days with economic life improving from savings of not having to buy kerosene as well as better school performance for the children.

On the next page is a photo of the opening of a new solar center. STK used this opportunity for a staff training. The second photo is giving to show how the panels are well secured. The panels are installed by STK staff. STK provides product guarantees to their clients and follow up visits to ensure everything is working properly.



## 6. Lessons Learned / Conclusions

*What are this project's main findings and conclusions?*

- End user funding can dramatically increase solar sales
- Market demand was confirmed. Especially for the SHS, not just the smaller pico products
- The viability of the PayControl model was confirmed

*Which recommendations can be made for similar projects, or within this context?*

- Prepare reliable end user financing
- Prepare user friendly payment models
- The more advanced the project is, the less likely there will be delays
- Additional funding will always be needed to continue the growth of the project

*Interesting observations within the project's context: Which of your personal impressions would you like to share?*

We were especially thrilled that STK was able to so significantly increase their sales thanks to the additional financing. It can be hard to attribute cause and effect in many projects because there are so many factors. But STK clearly felt their growth was thanks to VS funding. Now they are not satisfied until we bring more funding!

I have previously worked with partnerships which were not as successful. I feel that this was successful because STs and VSs interests were perfectly aligned and their areas of activity were complementary.

## **7. References**

*Reference list of publications, reports, etc.*

## **8. Annex**

*When available: Reports, press articles, brochures, test results, etc.*

Please include **photos**, easily comprehensible graphics, etc., with this report.

Please send the complete final report directly to: [info@repic.ch](mailto:info@repic.ch)

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