

# **Solar Light for Oruching Valley, Uganda**

**Report of a visit to the Solar Assembly Plant  
(25.10. – 30.10.05)**

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**Currency conversion:**    **2.200 UgSh = 1,- €**  
                                      **87 KSh = 1,- €**

## 1. Introduction

Water is very scarce in the Oruchinga valley, South of Mbarara. Women and children often have to walk 5 –8 km to and fro to fetch water, sometimes even more. This consumes a lot of their time and energy.

Rainwater harvesting was seen as a possible solution to the problem. It has started in Oruchinga Valley, Southwest Uganda some 10 years ago. Rainwater harvesting was implemented by savings groups (mostly women) and is now spreading very fast in the area.

Another real big problem is the missing electricity, esp. decent lighting in the evenings. There are only kerosene lamps that shed poor light in the homesteads. The saving groups have shown how to solve the water problem and are now ready to tackle the problem and provide decent light. They want to get rid of the dark kerosene lamps and the rising costs for their fuel.

When CCS (Centre for Community Solidarity, Mbarara, Uganda) approached Verein Vorbachmuehle, Weikersheim, Germany, they suggested solar lanterns as a possible solution. The idea is to assemble the solar lanterns in the area where they will be used (Oruchinga Valley). This would bring skills and added value into this rural area and would provide enough experience and knowledge to also assist in the installation and possible repair of the systems.

Financial support from “Stiftung Arche Noah, Germany” is greatly acknowledged.

## 2. The setting

The solar light project is owned and run by CCS (Centre for Community Services). The workshop premises are rented from Monica Ltd (Petrol Station) at a strategic good place on the road between Mbarara and Kikagate.

Charles Rwabambari is the workshop manager and Geoffrey is the vice manager. At the moment, there are 6 workshop technicians plus Charles, 3 of them have been in Kenya – no one has formal training as electrician but Geoffrey has some experience with electric appliances.

The names of the workshop technicians:

- Geoffrey Ruankuba
- Musinguzi Julius
- Ninsima Rabeka
- Tumuramvie
- Bataka A.G.
- one other person, who was not present.

### **3. The process so far**

#### 3.1 Training

Phase 1:

The training in Kenya was an eye opener for the three Ugandans. They acquired skills in gluing, soldering and assembling. The Kenyans made sure that they acquired the necessary skills. It was 2 weeks of intensive workshop training. Charles and 2 local technicians went.

Phase 2:

Mr. Kamau and a technician, Mr. Kimani came for 1 week in the 3<sup>rd</sup> week of October 2005.

They assisted in setting up the solar workshop and went with the technicians through the same process of assembling:

- Assembling solar lanterns (gluing, soldering, assembling)
- Panel assembling (drilling, setting up the frame, fixing and tying the panel in a protected way)
- Hands-on practice of setting up the charging centre
- Utilising the charging centre for soldering and charging the assembled lamps
- Trouble shooting

#### 3.2 Transport of the parts from Germany to Uganda

- Document: invoice for freight charges was missing but was sent afterwards by e-mail
- It was rather awkward to send the boxes through Mombasa, as it was rather complicated and high costs were incurred (handling charges in Mombasa, transport to Kampala, Kampala handling charges, see finances)
- Taxes like VAT were waived of – only withholding tax was paid, 6% of the total cost of the materials (see also annex 1)

Materials sent

- Packing was good
- Materials were ok and complete
- AC-DC Converter is not working properly it does not work with the inverter (as there is not AC mains, it is anyway useless). CCS bought an inverter (also used for the computer) and one soldering iron for AC (from Mr. Kamau) so that soldering can be done also when there is no sunlight.
- Solder is already finished and procured locally – also the timber for the frames
- The Silicon press broke and cannot be used
- Loctite is not enough

Lessons learnt

- Materials to be sent directly to Kampala next time

#### 4. Financial aspects

Calculation of sales price

- a) Initial cost for one set of parts to be considered.
- b) The price is set now at 180.000 UGSh (covers spare parts, transportation, taxation, handling charges (makes 82,- Euro)
- c) The same lamp in Kenya costs 6.500,- KSh, makes 75,- Euro

Running Cost

Consumables: Wood, varnish, glue (Loctite), solder, drill bits

Wages for workers; 15 lamps by 5 people x 5 hours

Accounting is being done by the treasurer of CCS, Mrs. Rwabambari.

#### 5. Marketing

Strategies so far.

- Target all people in Oruchinga valley (and outside), women groups or individuals
  - o Women groups who are willing to save together to buy solar lamps for their members on a rotational basis
  - o Individuals who are willing to open up a savings account with CCS
  - o Talk to “microfinance institutions” to open a specific credit line for solar lanterns
- have a store in a busy centre (planned is to have it at Kajaho, where there is a big market on Thursdays for all the surroundings)

Considered in the future

- promote the group approach that has worked so well with rainwater harvesting  
(if the group buys 10 lanterns, they get one free)  
Groups (or individuals that live close together) can be offered also to buy only the lanterns and one charging station together
- CCS charges the lanterns at a fee at mile 28 or loan charging stations to individuals and get part of the fees
- Talk (advertising the lamps) and specific advertisements on the local radio (stationed in Mbarara)
- Advertisements in the local language newspapers and articles
- Pamphlets
- Posters produced with photos from Oruchinga
- People who bring a new customer get 5.000 UgSh as incentive
- the first 10 customers get 5% off as a reward being the first ones
- marrying NGO and business approach is important to bring across when advertising the lanterns
- guarantee for 1 year (CCS will provide free service if there should be problems with the system but only for problems that are not due to mishandling or deliberate misuse)

Other ideas/items to mention

There is also a way to sell a charging station to groups so that members buy only the lamps and not the solar cells. This could work for individuals as well, who live close together and group themselves around the “charging” centre.

## Annex 1

The investment of CCS for the solar lantern production:

Item	Cost, UgSh (KSh)	Cost, Euro	Proof
First visit to Kenya, Transport and accommodation	120.000,- UgSh	55,-	No invoice
Training and accommodation in Kenya	26.000,- KSh	299,-	Invoice
Transport to Kenya and back (for trainees)	100.000,- UgSh	46,-	No invoice
Training in Uganda	28.000,- KSh	322,-	Invoice to be produced
Clearance in Kenya	373,- USD	311,-	Invoice
Transport from Mombasa to Kampala	269.000 UgSh	122,-	Invoice to be produced
Clearance agent in Uganda	124.600,- UgSh	57,-	Invoice
Withholding tax	66.516,- UgSh	30,-	Invoice
Transport of box from Kampala to Oruchinga	100.000,- UgSh	46,-	No invoice
Materials			
-Soldering Iron	15.000,- UgSh	7,-	
- Demonstration lantern	6.500,- KSh	75,-	
- Inverter/Regulator	200.000,- KSh	91,-	
<b>Total</b>		<b>1.461,-</b>	

Not contained in this cost are:

- Workshop tables
- Workshop rent
- Time spent in clearing, arranging for transport, etc.