
A Report on Awareness Creation activities conducted by REWMOS project between March – May 2019



FOCUS:

*Best Practices to Enhance Efficiency, Extend the lifespan
and Improve Waste Management of Off Grid Solar
Home Systems (SHS).*



INTRODUCTION

Solar waste is described as discarded solar electronic devices or appliances that have ceased to be of any value to their owners. Creating public awareness and enhancing participation is a critical component in any waste management program. Everyone needs to have a proper understanding of waste management issues, without which the success of even the best conceived waste management plan becomes not viable. In addition, appropriate legislation and strong technical support is also a prerequisite.

Resource Efficiency and Waste Management for Off-grid Solar Products in Kenya (REWMOS) is a project that aims to tackle the issues related to electronic waste from off-grid solar products in Kenya. The project is implemented by Solibrium, a social enterprise located in Kakamega, Western Kenya in partnership with Myclimate and REPIC. The project also aims to reduce the negative environmental impacts of SHS at the end of their lifespan and increase the value associated with owning a SHS for the end-user. All this can be achievable by creating effective awareness and sensitization.

Between March – May 2019, REWMOS conducted series of awareness creation meetings that brought together solar users, prospect solar users, and solar technicians in Western Kenya. The objectives of the awareness program were to:

- Educate solar users on best practices to enhance efficiency, extend lifespan and improve waste management of off grid solar home systems.
- Provide awareness to stakeholders (solar users, technicians, and prospect solar users) on what REWMOS intends to do.
- Seek responses and opinion of the stakeholders about best practices on disposal of obsolete solar products.
- Seek feedback and experiences from solar users regarding use of solar, and practices that that can increase longevity, efficiency and effectiveness of solar components.
- Get feedback and opinions on sale of solar using lease model.
- To identify which best practices users are already employing in their homes.
- To identify which additional best practices will users welcome and are interested in.
- Teach users about best practices, environmental impact of SHS waste, and economic and environmental benefits of life-span extension of SHS.

This report summarizes the proceedings of the awareness creation meetings held in 9 locations in Western Kenya, and feedback from the solar users regarding management of solar e-waste. The report also gives insights on what kind of questions that the solar users have in mind with regard to disposal of their solar components when they reach end of life. During the 9 meetings, a total of 430 solar users and 59 prospective solar users attended. In addition, the report highlights on the outcome of the Radio talk show which was held on 10th May 2019 (Lubao FM – 102.2FM) where more than 2,000 listeners had tuned in.

Resource Efficiency and Waste Management for Off-grid Solar Products in Kenya

[Implemented in Partnership by Myclimate & Solibrium]

Solibrium Limited

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LIST OF PARTICIPANTS

DATE	VENUE	Solar users	Prospect solar users	Solar technicians	County Govt officials	E-waste expert	REWMOS team
2019-03-08	Matiha	67	7	1	0	0	4
2019-03-13	Emasera	22	5	1	0	0	3
2019-03-14	Solyo	72	8	0	2	1	3
2019-04-04	Ichingo	26	5	0	0	0	0
2019-04-10	Eshiakhulo	30	6	1	0	0	3
2019-04-11	Mundoverwa	61	6	1	0	0	2
2019-04-24	Mago	90	10	1	0	1	1
2019-04-25	Imbale	32	6	1	0	1	1
2019-04-26	Malava	30	6	0	0	1	1
	Total	430	59				

NOTE: Radio talk show was held on 10th May 2019 (Lubao FM – 102.2FM) that lasted for 30 minutes. More than 2,000 listeners had tuned in. Radio talk show included an interactive session with the radio presenters and listeners. This radio talk show was hosted by Irene Nasimiyu (of Lubao FM), Hardley Malema (REWMOS) and Eliud Bayo (REMWOS).

PROCEEDINGS DURING THE AWARENESS MEETINGS

a. Demonstration of solar product parts

First, Solibrium’s technical team displayed components of different types of Solar Home Systems. They explained the functions of every component on the SHS. These components include; battery, solar panel, Bulbs, Cables/wires and a Television set for TV kits. The technicians also mentioned to the users the estimated lifespan of each of the components as follows: Batteries -5 years, Panel -25 years; and bulbs – 30,000 working hours.

b. Expert Advice on best practices on use and maintenance of SHS

- Regularly clean solar panels and other components. For the solar panel, water with no detergent should be used with no detergent for effective charging.
- Install panels in well protected areas away from children and their preferred play areas.
- Handle fragile components e.g. bulbs with care to avoid breakages
- Always plug in recommended components to right USB or charging ports to avoid short-circuiting the components.
- Install solar panels at an angle that allows maximum exposure of sunlight especially at peak hours of sunlight around mid-day.
- Storage of the battery in a safe place away from children interference and fire sources.
- Contact qualified technicians for proper diagnosis, advice and repair of faulty components.
- Always ensure the battery is fully charged.
- Do not power faulty or multiple components.

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- Always read the user manual and use the components designed for the system.
- For flooded batteries, periodically top up battery acid.

c. Best practices on Disposal (For solar users)

- Take obsolete solar components to designated collection points for proper recycling/disposal, or consult relevant authorities e.g. NEMA or your seller for advice.
- Call REWMOS on 0797173003 for advice.
- Do not dispose the batteries on open land or latrines
- Do not burn the obsolete solar components.
- Call and return the products to the suppliers at the end of life.
- Read and keep all the documents issued at the date of purchase for advice on disposal practices.
- Solar users acknowledged that they had learnt about REWMOS, how to maintain their components and proper disposal.

d. Key points from presentations by the County of Government about E-Waste Management.

- The Ministry of Environment is working on the county E-Waste bill.
- Partnerships with private sector such as REWMOS will be initiated.
- There has been an increase of solar components in the region and Waste will soon be an issue to address.
- Without proper disposal, the negative impacts can affect environment, water body sources and human life.
- More awareness to be done to the solar users.
- The county has started training of technicians in the polytechnics and opening up of collection points.
- County government will give incentives to be given to companies that will address E-waste.

e. Negative Impacts of E-waste.

- Impact on the environment: immediate and direct impact of inappropriate recycling or disposal of end of life products will mean local contamination for example through hazardous materials used in batteries.
- Dumping electronics in a landfill creates a big problem to the environment, for example the batteries contain lithium ion that is toxic. The different toxic substances can also pollute water making it unsafe for drinking.
- E-waste contains materials that are toxic such as lead, mercury which are harmful to the environment and human health if improperly managed. The impacts on health can bring damage or implications to reproduction, liver, kidneys, blood, respiratory, heart and lungs.

KEY RESULTS/FINDINGS FROM QUESTIONNAIRE SURVEYS

1. Questionnaire survey was administered to a total of 210 solar users (121 (58%) were female while 89 (42%) were male). *Copy of the Questionnaire is in Appendix 1*
2. The average length of period that the solar users who participated in the survey have had SHS was 1.37±1.32 years old. The oldest SHS was 6.9 years old while the newest was a week old.
3. Majority of the solar users who were interviewed would return back obsolete SHS components to the supplier (Table 1)

Table 1: Responses on how solar users intend to dispose obsolete SHS components

Action	Number of respondents	Percent
Return back to the supplier/office	169	80.48%
Recycle components on their own	20	9.52%
Wait for REWMOS to come and collect obsolete components	1	0.48%
Don't know what to do	18	8.57%
Make a call to the supplier	2	0.95%




4. 89% of the solar users would be interested and willing to collect obsolete solar components on behalf of Solibrium and REWMOS project. More than 62 % of those willing to collect would expect to be compensated for collection work. On the other hand 24% of those willing to collect obsolete components will prefer to be given a new replacement of their kits.
5. 91% of the solar users are not aware on any person or organization that is currently collecting obsolete SHS. The remaining 9% mentioned individuals, NEMA and REWMOS as people/organizations that collect e-waste from SHS.

SUMMARY OF FEEDBACK FROM SOLAR USERS ABOUT COLLECTION OF OBSOLETE COMPONENTS

- A total of 489 solar users and non-solar users were reached directly during the awareness creation programs, plus more than 2,000 listeners via radio.
- Majority of solar users have no idea about the lifespan of the components. This is partly because most of them have not read user manuals that came with the SHS. These manuals are written in English language which many do not understand
- Majority would contact REWMOS to return back obsolete solar components for proper disposal.
- Many users would want some incentives to return back obsolete components.
- A very small percentage of SHS had so far malfunctioned and as such, disposal was not a big issue at the moment
- At the end of the meetings, all the SHS users were given brochures written in both English and Kiswahili with graphic illustrations of the best practices (*Appendix 2 and 3*). Solibrium technician made illustrations on the procedures and processes required to properly maintain kits and extend their lifespan.

With support from:

Appendix 1: FEEDBACK FORM.

  		
P.O. BOX 1348, Kakamega, 50100, Kenya info@solibrium-solar.com +254-796-738-469./0797173003		
GENERAL INFORMATION		
1	Date	
2	Name of Respondent	
3	Phone Number	
4	Village	
5	Location	
6	Name of Interviewer	
INSTRUCTIONS: Please ask the questions and write answers/tick the boxes appropriately.		
A. Your Solar Home System		
1	Do you have a solar home system?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
2	What is the type and model of the SHS?	
3	For how long have you had your SHS?	
4	Where did you purchase your SHS?	
5	Is the SHS in use?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
6	If no, why?	
B. Solar E waste Management		
1	What did you learn today?	
2	Your level of understand what is E-waste (obsolete solar components)? E-waste impacts on health, environment and economy and Sustainable E-waste Management after the training (please tick)	<input type="checkbox"/> Excellent <input type="checkbox"/> <input checked="" type="checkbox"/> Average <input type="checkbox"/> Poor
3	How would you dispose off the product once it gets to end of life?	
4	Would you be willing to collect obsolete solar components on behalf of Solibrium?	
5	What would be your expectations?	
6	Would you recommend use of our E-waste Solutions to others users of Solar products not sold by SOLIBRIUM?	
7	If no, why?	
8	Do you know of someone else (organizations/institutions /recycler/ repair shop/refurbishing center) collecting obsolete solar components?	Yes <input type="checkbox"/> No <input type="checkbox"/>
9	If Yes kindly give us the name of the a (organizations/intuitions /recycler/ repair shop/refurbishing center) and contact details	
C. NATURE OF E-WASTE STREAMS IN YOUR POSSESSION		
1	What is the nature of your E-waste streams if you have them?	
2	a). Obsolete solar components only (i.e. Solar kits, batteries, solar panels, charging systems, cables etc.);	Yes <input type="checkbox"/> No <input type="checkbox"/>
3	b) Mixed E-waste streams (i.e. large, medium and small household appliances, office equipment, etc.)	Yes <input type="checkbox"/> No <input type="checkbox"/>
D. General comments/Any Recommendations to improve our E-waste management solutions (disposal, collections, transportations, recycling)?		

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State Secretariat for Economic Affairs SECO
Swiss Agency for Development and Cooperation SDC
Federal Office for the Environment FOEN
Swiss Federal Office of Energy SFOE

Appendix 2: Best practices graphic brochure – English Version.

SHS
Solar Home System

Best Practices to Enhance Efficiency, Extend the Life Span & Improve Waste Management of Off-Grid solar Home Kits

REWMOS Project

SOLIBRIUM-SOLAR
Nuru Malshani

REPIC  **myclimate**
Shape our future

PHONE NO: 0797 173 003
EMAIL: rewmos_project@solibrium-solar.com
www.rewmosproject.com

PHYSICAL LOCATION
Kakamega, Kenya.

CLEANING OF SYSTEMS
Regularly clean your solar panel using water with no detergent for effective charging.

DO NOT PUT PRESSURE
Always be careful when handling solar panel to avoid breaking as a result of their delicate nature.

CONSULT QUALIFIED TECHNICIANS
Contact qualified technicians for proper diagnosis, advice and repair of faulty components.

SOLAR PANEL INCLINATION
Install solar panels at an angle that allows maximum exposure to sunlight especially at peak hours of sunlight around midday.

SYSTEM PARTS & UTILITIES
Always plug in only recommended components to right usb or charging ports to avoid short-circuiting of the components.

KEEP AWAY FROM CHILDREN
Install your solar panels in well protected areas away from children and their preferred play areas.

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Appendix 3: Best practices graphic brochure – Kiswahili Version.



EREZA PANETI ENEO KWAFIKA KU WATE KALIF YA JUA YA KUTOIFA.

NJIA SAHILI YA KUTUPA TAKA LA SOLA
Chukua vipengele vya sola visivyofanya kazi kwenye vitu vyenye mkusanyiko vilivyowe kwa kwa ajili ya kuokata/kusafisha sahihi au kuwasiliana na mamiaka husika kwa mfano NEMA au muuzaji wako kwa ushauri

REWMOS Project

SOLIBRIUM - SOLAR
Nuru Maishani

REPIC 

SIMU YA RUNUNU: 0797 173 003
Barua pepe: rewmos_project@solibrium-solar.com
Wavuti: rewmosproject.com

ENEO HALISI
Kakamega, Kenya.

SHS
Solar Home System

Mazoezi bora ya kuongeza ufanisi, kupanua muda wa maisha na kuboresha usimamizi wa taka kwa bidhaa za sola inayotumika nyumbani.



USAFISHAJI WA SOLA.
Panguza paneli ya sola kwa kutumia maji safi bila sabuni kucundoa vumbi ili kudumisha uwezo wa kuweka kawi na chaji.

UNWASE SHAMBA LAI KINYE SOLA.
Kwa mkini wakati wote unapotumia paneli ya sola ili kuzule uharibu au kuvunjika.

Weka paneli kwenye sehemu nzuri mbali na waloto.

PATA HODUKA KWA FUNDI ALIYETIKU.
Kwa uchunguzi, ushaun au kurekebisha sola iliyocharibika, tumia fundi aliyehitimu kila

TRUKIA WA MWELEKSO WA SOLA.
Weka paneli ya sola katika sehemu ya kiwango cha pembe nukta inayopakishwa unapata mwanga wa kutosha haswa wakati wa mchana (Saa sita)

VIPENGELE VYA SOLA.
Tumia vifaa vilivyotambuliika na kudhibitishwa ili kuzuia uharibu wa pofi za mtambo.

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