PRACTICAL ACTION
Technology challenging poverty

SE4RC
SUSTAINABLE ENERGY FOR RURAL COMMUNITIES

CARD
Churches Action in Relief and Development

Hivos
people unlimited

ENVIRONMENT AFRICA

Presentation on Malawi Sustainable Energy For Rural Communities [SE4RC] Project

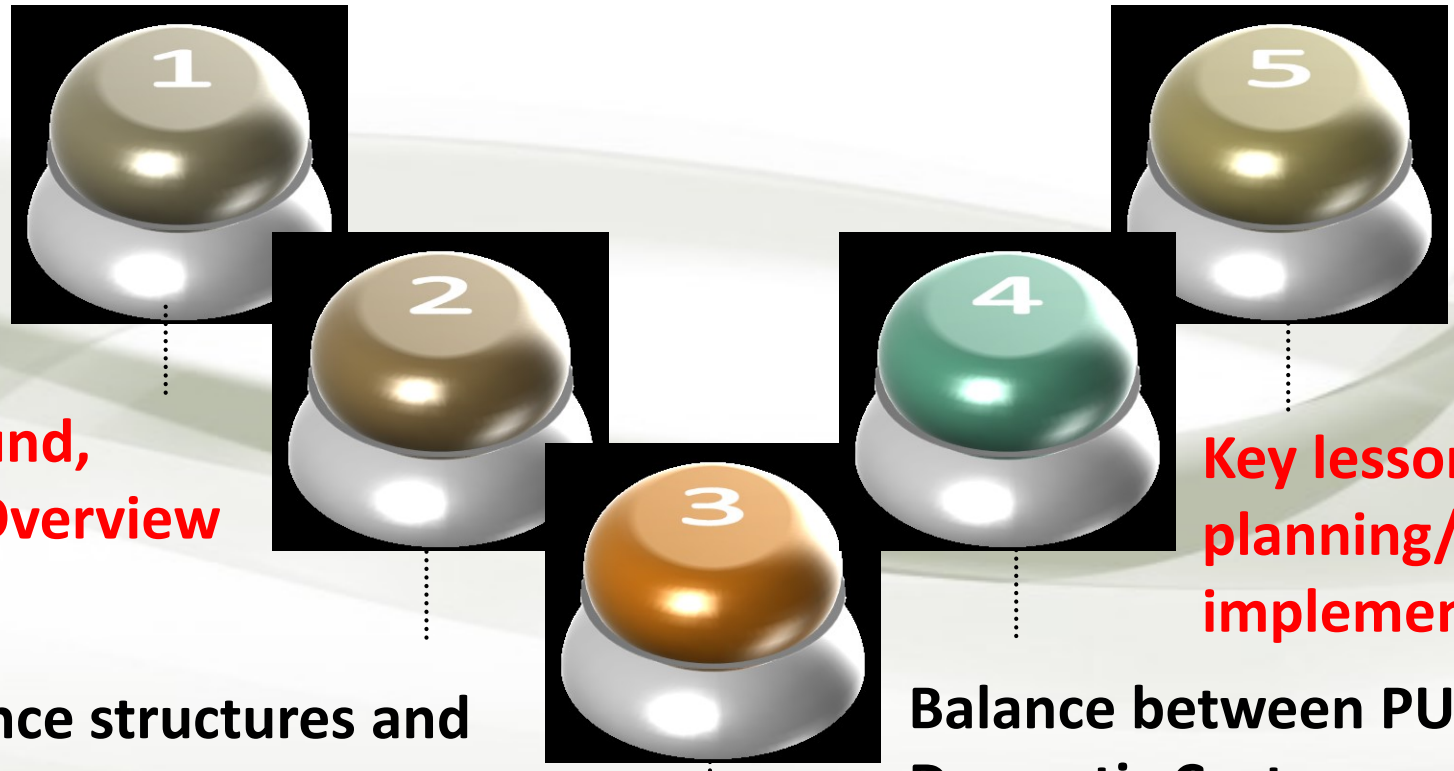
By LONJEZO EW BINGALASON (Project Coordinator/Engineer)

lonjebinga@gmail.com

+265 (0) 881 644 320/994 009 735

EASE WEBINAR

CONTENT



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Project background Objectives and Overview

Background

- CARD implemented a project called Sustainable Energy for Rural Communities (SE4RC) in Nsanje and Chikwawa, Malawi with funding from European Union(840,000£).
- The project was being implemented in partnership with Practical Action (Consortium lead), Hivos (Technical and business model), and Environment Africa (Implementer Chikwawa)

Project background Objectives and Overview Objective of the project

Main Aim

- To contribute to the attainment of the Sustainable Energy for All (SE4ALL) goal that aims to ensure universal access to modern energy services in rural areas of Malawi and Zimbabwe.

Specific Aim

- To improve access to modern energy services that contributes to better well-being (social and economic) of rural men and women of Malawi and Zimbabwe.

Target Beneficiaries

- 30,000 men, women and children in remote rural Malawi and Zimbabwe (thus 20,000 in Malawi and 10,000 in Zimbabwe) were expected to benefit from the project.
- The project anchored off-grid energy service delivery to underlying agriculture and socio-economic development in isolated rural communities of Nsanje and Chikwawa in Malawi.

Target areas

- **The mini-grids:** (4) servicing irrigation schemes, clinics, schools, rural Entrepreneur Kiosk Operators, Community Energy Service Companies (CESCOs) small rural businesses and households.

- **Energy kiosks:** (7) enable service delivery for low energy users: The business here in include selling and lending of solar lanterns, barbershops, printing and photocopying, refrigeration services and video shows

Project Overview

SOLAR POWERED MINIGRIDS				
NAME OF THE MIN-GRID	**LOCATION**	**CAPACITY (KW)/M3**	**NO OF CUSTOMERS**	**OTHER CONNECTED PUE**
Chimombo	TA Chimombo-Nsanje	15	13	1 Solar Maize Mill, 1 ESC & 1Bottle stole
Nyamvuwu	TA Mbenje - Nsanje	30	16	30 Ha Irrigation Scheme, 1 ESC & 1 Cattle farm
Mwalija	TA- Kasisi - Chikwawa	15	8	7 Ha Irrigation Scheme
Oleole	TA- Oleole - Chikwawa	25	17	20 Ha Irrigation scheme & 1 ESC


Nyamvuwu Solar power Station in Nsanje (30Kw)

Mini-grid Power lines and a single phase 25KVA step-up transformer at Nyamvuwu

Inside Nyamvuwu powerhouse:
24 batteries of 2Volts, 2613Ah
5kw solar inverter and a 6kw hybrid inverter

Dande Primary students having lessons during night

Installed Solar mill and an operator helping a woman grind her maize at Chimombo solar power station

Small business enterprises eg barbershops, video shows, bottle stores and grocery shops

Lantern charging, selling and lending at Nyamvuwu ESC


Mwalija irrigation scheme


Nyamvuwu Irrigation Scheme


Solar irrigation systems in
Nsanje and Chikwawa

Governance structure and Business Model of the Mini-grids and kiosks

- The project conducted capacity building (in business management, leadership, governance and O&M of the system) to the 4 Community Energy Service Companies (CESCO's) to become a legal entity with capacity to access funds and be able to deliver sustainable services modelled around constant re-investment, tariff setting and growth of the existing facility. The CESCOs Own, Operate and Maintain the mini-grids while making available the benefits to the communities within the project jurisdiction area
- Manager and operators collect the user fees for the energy use through a Pay Go business model type (Smart metering) and product sells on behalf of the (CESCOs).

Tariffs

3 Tariff categories

- $ 0.13 (96.6) per Kwh for Business category
- $0.12 (K86.2) per Kwh for and households
- $ 0.09 (K67) per Kwh for social facilities (Clinic, school and churches)

Connection fee

- K20 000 minus all wiring and distribution works

Balance between PUE and Domestic Customers

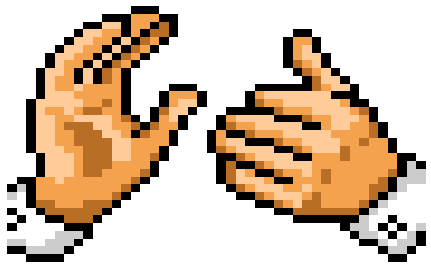
- Productive Use of Energy (PUE) has a big potential to boost local economy and create more jobs for the youth whilst ending poverty for the rural masses
- There is a need to do proper initial assessments to identify and satisfy the energy needs of the target areas and/or to assess the willingness and ability to pay and use the interventions
- Irrigation schemes needs to upgrade themselves into registered cooperatives and have access to micro finance institutions – They have potential to add value to their products
- The current energy supply is enough to connect about 800 customers but only few customers (54) are connected – high initial connection costs especially those that are far away from the distribution line.

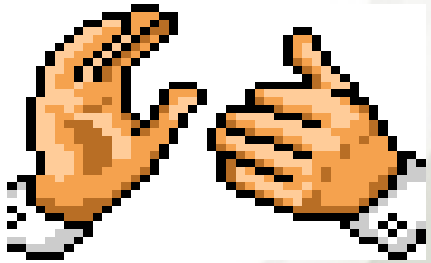
Key lessons on the planning, design & implementation

- Community owned projects are not Sustainable – (poor financial management and inability to grasp technical aspect and handle the complexity of energy installations and operations) - More capacity buildings and support is needed especially in the O&M and business management for this kind of Business model - Companies/NGOs need to be encouraged to build, own, maintain and run the systems as social enterprises for sustainability purposes.
- Encroachment by MAREP indicates lack of proper consultation during planning phase of the project – Wherever MAREP has encroached a min-grid, section 33 of Rural Electrification Act 2004 and section 5 of the Mini-grid Regulatory Framework has to apply – interconnection /absorption - DoEA needs to be established at district level to monitor mini-grid developments and handle all Energy related issues including capacity building and other supporting activities.
- Providing startup materials for the CESCOs and linking them direct to the suppliers and/or encouraging private sector investors can be ideal to sustain the projects.
- Strong collaboration with relevant Government bodies (MERA) needs to be encouraged to ensure a good quality of power supply and standard installations in all the min-grids.

Key lessons on the planning, design & implementation

- Projects need to consider "Low income levels" for communities with an eagle eye – support needed to establish more grid connections and collect enough revenue for smooth operations and maintenances
- Access to market and suppliers – Local market suppliers need to be encouraged.
- Community involvement should be emphasized in all project life cycles to establish local partisans – Communities need to be encouraged to take full ownership





Thank you