

CLEAN AND EFFICIENT HOUSE HOLD LIGHTING PROGRAMME: PHASE ONE

Objective: To replace kerosene and biomass as fuel for household lighting with efficient clean lighting solutions

Location: Kenya

Scope: Nationwide

Duration: 5 years

- Phase 1 (Pilot phase) 2 years
- Phase 2 (Upscale phase) 3 years

Budget: USD 30 million

Framework, stakeholders' mobilization and Regional roll-out (Energizing Phase)

- USD 3 million in 2 years in selected 5 regions of Kenya (Coast, Eastern, Rift valley, Central and Nyanza). Includes project initiation costs and baseline studies.
- Revolving fund in pilot regions- USD 2 million

Up scaling by result based financing (Performance Phase)

- USD 25 million roll-out to the rest of the country

Problem to be addressed

Kenya is highly dependent on fossil fuel for rural and off-grid lighting. Women and children are the most affected by use of kerosene for indoor lighting due to high cost, limited study time for children and respiratory diseases as a result of fume inhalation. Businesses in off-grid areas are also impacted as they cannot operate long after sunset. The switch to clean and efficient alternatives to kerosene for lighting is still very slow due to the following reasons;

- Clean lighting entrepreneurs are not able to access high upfront capital to start their retailing businesses and have inadequate business management skills
- Lack of after sales support for the clean lighting technologies
- Low awareness and education on good quality clean lighting technologies, as well as poor access to financing by consumers
- Failure of market systems due to inadequate linkages between lamp retailers and suppliers, as well as access to finance by the end customer

Policy Context

The Kenyan government has made kerosene replacement one of its National Adaptation and Mitigation Actions (NAMAs). A team has been rallied through the Ministry of Energy and Ministry of Environment and Mineral Resources to develop a national strategy to accelerate replacement of kerosene for household

lighting. The Office of the Prime Minister through its Greening Kenya Initiative has kerosene replacement as its key agenda. There have also been policy changes to remove taxes on solar lanterns importation in the last two years and removal of import duties and taxes on solar equipment making components. Kenya's Energy Act identifies a commitment to providing an enabling framework for the efficient and sustainable production, distribution and marketing of renewable energy. This vision for green energy is further emphasized in the Kenya government's Vision 2030, which identifies reliable, clean and affordable energy as a foundation for Kenya's long-term economic and social development. The United Nations has declared 2012 as the International Year of Sustainable Energy for All with UNIDO as the lead agency. Therefore the readiness phase of the Energy+ approach is already in place in Kenya.

Expected Impact of Full Programme

1. The replacement of kerosene lamps with clean and efficient lighting units in 5 years. The target is about 30% of the total household currently using kerosene lighting, which will be the market "tipping point" at which market forces will take charge and the rest of the population will adopt the technology naturally. At the pilot phase (the first 2 years), the target will be to replace kerosene lighting in 200,000 households.
2. A vibrant lighting market in Kenya driven by market mechanisms and private sector supported by a framework of reforms in relevant standards, regulations, tax and customs regime, anti-counterfeit mechanisms and financing facilitated by the government.
3. Improved national economy, environment and health;
 - Strengthened economy for households spending less money on lighting
 - Reduced respiratory diseases, especially for children and women
 - Increased green jobs and new companies created, and strengthened domestic electronics knowledge base in the efficient lighting industry
 - Improved performance among school pupils due to better lighting
 - Enhanced local business through more business hours in evenings due to availability of lighting
 - Strengthened national economy due to reduced kerosene import bill and better trade balance

Proposed Partners and Roles

To ensure success of the initiative, stakeholder participation is critical at all stages. Transparency and accountability of all partners will contribute to optimal results. Proposed partners and their roles include;

1. Government of Kenya - for relevant policy and regulation review, and support in compliance monitoring, standards development and technology development. Includes;

- Office of the Prime Minister
- Ministry of Energy
- Ministry of Environment and Mineral Resources
- Government agencies such as National Economic and Social Council (NESC), Energy Regulatory Commission (ERC) and Kenya Bureau of Standards (KEBS)

- 2. Private sector [Technology manufacturers, entrepreneurs and financial institutions]** - to drive the process in the whole business (value-chain) by providing access of the clean lighting technologies to the end users while supporting them in after-sale-service.
- 3. UN agencies, NGOs and other development partners** - provide support to develop a strong policy and strategy to implement efficient lighting where private sector participation is well coordinated and regulated
- 4. Lighting Africa Programme** - to support consumer education and technical training for selected entrepreneurs, provide technology quality control advice to the value chain, and promote use of solar technology for lighting using various media.
- 5. Academia** - will ensure that clean and efficient lighting is part of the academic training as a way of promoting local knowledge, innovation and technology.
- 6. Public [End-users]** - uptake of clean lighting technology and feedback for improvement of technology and financing model

This is an umbrella sectoral approach programme that will invite other relevant stakeholders to learn from best practices and apply them in a coordinated manner towards the common goal of increased access to energy and reduced greenhouse gas emissions.

Monitoring, evaluation plan and indicators

A mechanism for measuring, reporting and verification of results will be developed in conjunction with partners. This will ensure cost effective, reliable and credible means of measuring achievements. The programme will tap into initiatives such as the Strathmore University's ICT Innovation, Entrepreneurship & Incubation and ICT Policy Research center called @ *iLab Africa*. Mobile technology will be used to collect data and disseminate information. Also their Centre of Excellence in Renewable Energy will coordinate the technical monitoring of the technology centers. Each component of the programme will be improved for both the upscale phase and replication in the East African region, based on the above monitoring and evaluation processes.

Results Based Financing

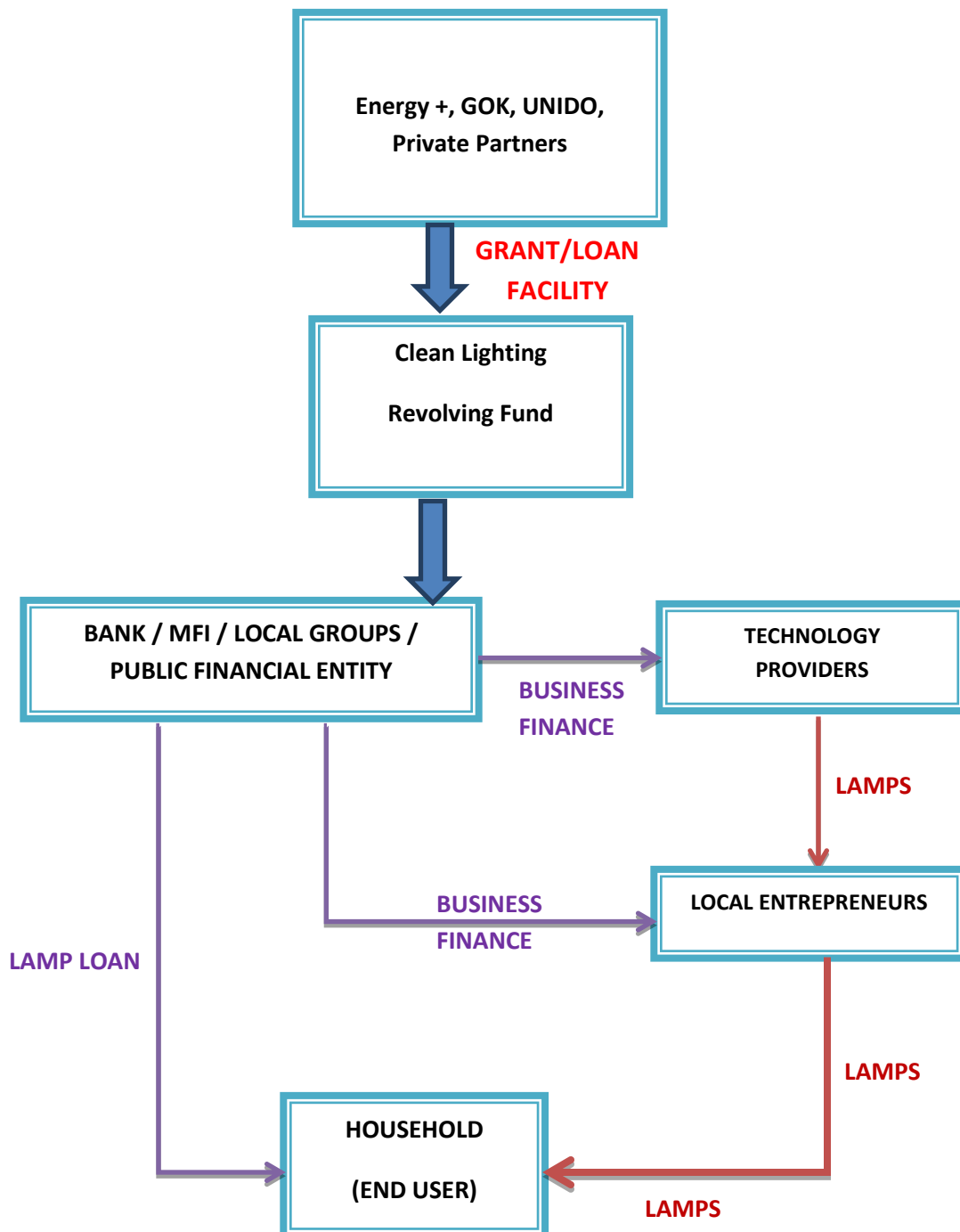
The proposed programme will establish household lighting sub-sector results based financing in Kenya. The detailed result indicators will be developed during the first phase of the project and then tested and partly implemented for the pilot regions. Both the analyses and the results as such of phase 1 will then enable for phase to 2 to have a fully result based approach and financing.

Results to be measured will include;

- Kerosene sales
- National kerosene import bill
- LED lamp sales/penetration
- Enterprise and job creation

- Finance accessed in form of loans and grants
- Qualitative surveys on health and education benefits

Clean Lighting Business Model



Notes

1. Revolving fund will be run by a Secretariat and have an independent Granting Committee to oversee allocation of funds
2. When 30% market penetration [“tipping point”] is achieved, market forces will take over and financing mechanism above may not be required

LOG FRAME

	Outcomes	Outputs	Key Activities	Indicators
1	National policy for sustainable clean lighting industry implemented	<ul style="list-style-type: none"> National policy (strategy) on clean lighting developed 	<ul style="list-style-type: none"> Set up multi stakeholder task force to develop strategy Hold validation workshop on draft Launch national strategy 	<ul style="list-style-type: none"> Country strategy on clean lighting
2	Sustainable clean lighting value chain developed	<ul style="list-style-type: none"> Increased access to affordable financing for clean lighting entrepreneurs and end-users 	<ul style="list-style-type: none"> Develop clean lighting financing tools 	<ul style="list-style-type: none"> Financial reports from revolving fund committee and entrepreneurs
3	Strengthened capacity for clean lighting industry	<ul style="list-style-type: none"> Clean lighting technology centres equipped and staffed Clean lighting standards developed 	<ul style="list-style-type: none"> Identify technology providers Train technicians to operate technology centres Procure and equip the technology centres Set up multi stakeholder task force to develop clean lighting standards Launch national clean lighting standards 	<ul style="list-style-type: none"> List of technology providers Training workshop reports Installed equipment at the support technology centers National standards in clean lighting
4	Enhanced access to affordable financing for clean lighting entrepreneurs and end-users	<ul style="list-style-type: none"> Clean lighting business model developed Clean lighting financing tools developed Partnership with micro finance institution established 	<ul style="list-style-type: none"> Develop and implement a business model for the clean lighting supply chain Design and implement a financing model for the clean lighting supply chain Monitor the model and provide results 	<ul style="list-style-type: none"> Financial reports from revolving fund committee and entrepreneurs Micro finance partnership agreement

5	Increased awareness and demand for clean lighting technologies	<ul style="list-style-type: none"> Partnership with Lighting Africa established 	<ul style="list-style-type: none"> Partner with Lighting Africa to build awareness on clean lighting technologies 	<ul style="list-style-type: none"> Partnership agreement
6	Effective results based financing measuring, reporting and verification mechanisms developed and tested	<ul style="list-style-type: none"> Results measuring, reporting and verification tools are developed 	<ul style="list-style-type: none"> Design and implement tools for measuring results Design and implement online platform for monitoring 	<ul style="list-style-type: none"> Results measuring, reporting and verification tools Monitoring reports
7	Accessible carbon financing mechanism	<ul style="list-style-type: none"> Practical carbon financing tools identified 	<ul style="list-style-type: none"> Investigate relevant carbon financing tools 	<ul style="list-style-type: none"> Carbon financing guide

INDICATIVE BUDGET FOR 2 YEARS (Phase 1)

Code	Item description	Amount in \$US	%	Comments
1	Staff costs costs			
a	Project Staff	350,000	7%	National and International
b	Travel	100,000	2%	
c	Office cost	50,000	1%	
	Sub-total staff costs	500,000	10%	
2	Operational costs			
	Program Preparatory			
a	Baseline studies	100,000	2%	
b	Capacity Building (Workshops, Training, Awareness activities)	250,000	5%	
3	Implementation			
a	Seed Revolving fund	2,000,000	40%	
b	Policy development support	200,000	4%	
c	Technology centres at Pilot regions	1,000,000	20%	
d	Monitoring and evaluation	300,000	6%	
	Sub-total operational costs	3,850,000	77%	
	UNIDO Support costs	650,000	13%	
	GRAND TOTAL PROJECT COSTS	5,000,000	100%	

Note: As per RBF, the rest of the **US\$ 25M** is planned to finance the upscale phase.