

LIGHTING AFRICA

N E W S L E T T E R

IN FOCUS

Portable Solar Lights in Chicken Farming- Illuminating the Pecking Order



The three chicken houses on the farm in Maai Mahiu, Kenya. Each house is equipped with a different lighting source, either kerosene lanterns, CFL bulbs, or LED solar portable systems. ©Lighting Africa/ Jennifer Tracy

Mr. Karanu successfully runs a commercial chicken farm in Maai Mahiu, Kenya, despite having no connection to the grid. He has a contract with Kenya's dominant chicken distributor, Kenchic Ltd., to buy chicks and then sell them back when they are grown chickens, typically after a 35-day growth cycle. Lighting is a key element of the maturation process because light stimulates the chickens to eat and grow to their full size and weight. The chickens are raised in houses that are lit for between 20-24 hours per day. On Mr. Karanu's farm, there are three identical chicken sheds and each one houses about 3,000 chicks. After starting out in 2006 using kerosene lamps for lighting, Mr. Karanu quickly saw the benefits of switching to solar.

"It was basically a cost issue; Kerosene was going up," he explained.

By investing in a solar and wind powered lighting system, he said he spent a significant amount up front, but knows he will save in the long run.

The Lighting Africa/Lumina Project Field Study

From August to September 2010, Lighting Africa and The Lumina Project conducted a field test on Mr. Karanu's farm during one chick rearing cycle. (cont. p2)

LIGHTING AFRICA NEWS

Lighting Africa releases updated quality assurance framework

Lighting Africa recently launched an updated framework for quality assurance to best support the market over the long term as the industry matures. Some things will stay the same going forward, like the multi-level, independent testing regime and the technical briefing notes series. The updated elements include revisions to the framework for interpreting quality and performance test results and a valuable new tool for publicly releasing and verifying test results- the **Standardized Specifications Sheet**. These improvements were strongly influenced by stakeholder input, and we feel that they strengthen the program considerably.

Lighting Africa's unique, global position in the off-grid lighting market means we support programs and stakeholders with a variety of product performance needs and differences in willingness to pay among consumers. To help make the quality assurance framework more widely applicable, we separated the Lighting Africa benchmarks into the **Minimum Quality Standards** and **Recommended Performance Targets**.

The **Minimum Quality Standards** focus on truth-in-advertising and adherence to basic quality criteria, such as lumen maintenance, IP-class, and durability tests, but do not include minimum performance requirements for run time or light output. To meet the Performance Targets, a product must pass the Minimum Quality Standards and also achieve the run time and light output performance requirements that Lighting Africa has been using for the past year. The separation between quality standards and performance targets allows the program to identify good quality products across a variety of performance levels, and it also creates a flexible Performance Target framework that can be adapted to meet the needs of a variety of bulk purchase buyers and markets.

Standardized Specifications Sheets (SSS) are the new tool for publicizing Lighting Africa test results, and are available on the Lighting Africa website (lightingafrica.org/specs). They are only made available for products that pass the Minimum Quality Standards to ensure a baseline level of quality for the products Lighting Africa supports. There are resources to help interpret and understand the specs sheets at the bottom of the page at: lightingafrica.org/specs.

What does this mean for me?

- **For Manufacturers**, the separation of Quality Standards and Performance Targets means that there will be new types of support available for a wider variety of good quality products. The specs sheets can be used to publicize your product's quality and performance in a verifiable, authoritative format.
- **For Policymakers**, the quality assurance framework can be more easily adapted to meet your needs. The Minimum Quality Standards are Lighting Africa's recommendation for a baseline level of consumer protection and the Performance Targets can be tailored, if necessary, to meet local needs.
- **For Distributors, Bulk Purchasers, MFI's, and Others**, the Standardized Specifications Sheets offer a quick and transparent way to evaluate the quality and performance of products that you may want to buy or incorporate into programs.



LED lamp chicken house. Photo taken without the flash to show actual lighting conditions.
©Lighting Africa/ Jennifer Tracy

Each shed was lit using differing off-grid lighting sources: kerosene lamps, fluorescent lights powered by Mr. Karanu's solar/wind system and good quality portable solar LED lighting. At the end of the study, while the chickens rate of growth stayed fairly constant in all three cases, there were key differences in light emission, distribution and efficiency, including:

- The kerosene lamps produced poor light, needed to be cleaned and refilled every six hours and emitted carbon emissions.
- The more permanently installed solar/wind powered fluorescent system was clean and effective but was expensive to purchase and install.
- The good quality portable solar lamps offered by Lighting Africa were cheaper per unit and easy to install.

"They definitely had more light and the advantage was that you could adjust the lamps the way you want."

In addition, results showed that in the first two sheds, chicks clustered to feed under available light sources, whereas in the LED house the chickens spread themselves more evenly because the LED bulbs provided a broader light distribution.

Mr. Karanu acknowledged that, of the three options, **the portable LED solar lamps worked the best.**

OFF-GRID LIGHTING SECTOR NEWS

Green Energy Loans for the Poor

Microfinance institutions in Ghana are leading efforts to bring affordable solar lighting to the poor. The Christian Rural Aid Network (CRAN) is one such institution and is aiming to provide energy loans to 20,000 people over the next 18 months.

"The success of our initial piloting showed demand is so enormous that we intend to replicate our program in many areas of Ghana," says Dr. Patrick Agbesinyale, Executive Director of CRAN Microfinance.

CRAN is providing these energy loans with the support of Impact Energies Ghana, which delivers innovative financing, supply and distribution support to microfinance organizations.

CRAN is a Ghanaian registered, non-governmental organization that was established in 1993 to meet the needs of rural and peri-urban poor communities and individuals in the Central, Western and Volta regions of Ghana. It supports its valued clients through the provision of microfinance and social development programs, supporting basic educational infrastructure, child education sponsorship, community sensitization, training, advocacy and health and sanitation.

For more information contact Noble at noblekuk@yahoo.co.uk or Hugh at hwhalan@impactenergies.com

PV Tax Cut in Kenya

Players in the solar energy market recently won a reprieve when the government removed tax on imported raw materials for the manufacture of solar panels.

The move should also cut costs for consumers, eliminating one of the stumbling blocks against adoption of green energy. It will also reduce demand on the national electricity grid, which is currently under pressure from the country's growing manufacturing sector. More at: <http://www.lightingafrica.org/kenya-tax-cut-on-solar-panels-to-light-up-more-homes.html?layout=item>

STORIES FROM THE FIELD



Map of Mafia Island, Tanzania

Targeting Schools to Reach Whole Communities

Referring to climbing fuel prices, Dr Moody, a local doctor, businessman and resident of Mafia Island off the southeast coast of Tanzania, said. "Not many families can use kerosene at home now."

The majority of Mafia Island's 50,000 residents do not have access to electricity and while charcoal is widely used for cooking, lighting from kerosene lamps is fast becoming a luxury.

In October 2010, portable solar light manufacturer d.light and the NGO SolarAid responded by developing a program to help get affordable, reliable and superior quality lighting into families' homes. Their approach involved focussing on Mafia Island's primary and secondary students, who were given the chance to own a solar powered task light at a subsidized price.

By working with Mafia Island's 11,100 school children (and thus their family members), the entire island community soon became aware of solar lighting as a cheaper, more sustainable, and better lighting option than kerosene lamps.

"To be honest we were stunned," said Claire Pederson of SolarAid, Tanzania. "After handing out leaflets, every single headmaster on the island turned up for our initial meeting and all forty schools then placed orders for solar lamps. Everyone was very excited."

As part of the initiative, the school headmasters received intensive training on the benefits of solar lighting and the students received instruction on how to operate and maintain the lamps.

(cont. p3)

STORIES FROM THE FIELD

(cont. from p2)

The outreach was wildly successful: more than 3,000 task lights were sold in less than a week.

Mr. Halfani, Headmaster of Micheni Secondary school, ordered 120 solar lamps for his student body of 106. Some students even took two lights, while others were bought by teachers at full retail price.

Mafia Island's children are now able to study at home at night. "Since owning the solar lights, the students' performance has improved. They are now doing better in their exams," Mr. Halfani said.

Since the schools program took place last year, demand has outstripped supply. "People like solar products very much. We are now waiting for a new shipment to arrive in Dar es Salaam," said Dr Moody, who is also a solar lighting distributor.

Lighting Africa supports the Tanzania Rural Energy Agency (REA) and its Lighting Rural Tanzania (LRT) grant competition. d.light is one of 10 LRT grant competition winners, receiving funding to support its lighting initiatives. d. Light Design's 'Nova S200' also won second place in the room lighting award category at the Lighting Africa Outstanding Product Awards Competition, May 2010.



Modern lighting can expand the working hours for small businesses © Lighting Africa

Having converted to solar lighting, Jacinta is now the envy of her friends:

"One of my relatives saw the lamps at my house and took a pack straight away. Before, kerosene was costing me 800 to 1,000 (Kenyan) shillings per month (about \$9.35 - \$11.7). Now the new lamps are saving me a lot of money."

"100% better"

This monthly saving helps Jacinta cope with a recent escalation in food and living costs. There are other benefits too. "Kerosene smoke caused eye irritation and the light was not enough. When I was not home, I always had to ask someone to go and sit with my kids because the paraffin lamps were not safe. Now the children can just switch the lights on and start studying safely."

Jacinta runs three lamps from four to five hours each day and the fourth runs all night until morning. She installed the system herself. "You don't have to bring someone to help you connect. I did it myself which was very nice."

"We need more lamps!"

Kerosene can be scarce expensive. Twenty shillings is barely enough to buy 20ml of fuel from small distributors. As a result, farm workers are spending almost their entire daily wage on kerosene. The Firefly 12 Mobile and PowaPack 5W lamps sell as soon as they are delivered to the farm.

Eager to own a lamp, farm employees have left deposits ahead of the next delivery; others are pleading for a full loan in order to buy the products. The surrounding community would like a shop where they too can purchase solar lamps.

Jacinta is happy with the phone charging facility on her solar lighting system. "Could we get a solar product that can run a TV and DVD player too?" she asks. The Barefoot PowaPack 5W and Firefly 12 Mobile are two of the eight products that **meet Lighting Africa recommended performance targets** for product quality.

Barefoot Power's goal is to make off-grid lighting technology affordable to people at the base of the pyramid. Lighting Africa recognized the company's commitment to quality when Barefoot Power won four **Lighting Africa Outstanding Product Awards** in May, 2010. The awards and recognition have assisted Barefoot Power in its marketing efforts.

Lighting Africa supports products that have met the recommended performance targets for quality through its consumer education campaigns and other market development activities. This includes business-to-business linkages with large corporates and microfinance institutions to support the growth of local distributors and importers and expand the reach of solar lanterns to small businesses and low income households.

ASSOCIATE NEWS

Farm Workers Enjoy the Benefits of Solar Lighting



L: Barefoot Power Firefly 12 Mobile; R: Barefoot Power PowaPack 5W

"When I put in the new solar lights, my kid thought it was electricity and told me to turn on the TV! There's no difference to main power (grid electricity), the solar is very bright. "

Jacinta, 27, is a mother and employed at Olerai Farm in Narok, Kenya. She was able to purchase her PowaPack 5W lighting system, which includes a set of four solar LED lamps and a 5W solar panel and battery for recharging, through a scheme sponsored by the farm.

Farm employees have the option to buy either the Barefoot Power PowaPack 5W lighting system or the smaller Barefoot Firefly 12 Mobile lamp by paying the first 50 percent upfront and then the remainder over three months.

This easy-to-pay scheme was conceived after the Lighting Africa Program introduced management of the farm to Barefoot Power, a manufacturer of solar lighting products. Lighting Africa works to establish such contacts as part of its business development support activities.

d.light Opens New Office In Nairobi

d.light has recently announced the opening of a new field office in Nairobi, Kenya. While their previous office in Dar es Salaam was only able to serve Tanzania, the new field office will act as the company's central hub for sales, marketing, and after-sales activities throughout Africa.

d.light has long recognized that many areas within Africa are key markets for them. About 110 million households across Africa do not have grid electricity, while millions more have only limited electricity (Lighting Africa, 2010).

"We have seen this ourselves in the form of growing demand for high-quality solar products across the continent. d.light is committed to providing the best consumer products and the best service for our partners and end-users in Africa."

"Opening this office in Nairobi brings us closer to our customers and enhances the services that we provide to our partners. I am extremely proud of the team that we have assembled in Nairobi, who, cumulatively, have over six decades of experience in sales, marketing, and distribution to base-of-the-pyramid consumers in Africa and other emerging markets."

- Chairman and CEO – Mr. Donn Tice

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The **Lighting Africa Newsletter** is a briefing on the latest developments in the Lighting Africa program and the off-grid lighting market. It is provided to all organizations and individuals in the Lighting Africa network. Help us help you tell your story by sending us your articles!

Lighting Africa does not endorse the contents of the articles submitted by its members. To submit articles or for comments, questions, or suggestions, please contact our project team at: support@lightingafrica.org

Lighting Africa, a joint IFC and World Bank program, seeks to accelerate the development of commercial off-grid lighting markets in Sub-Saharan Africa as part of the World Bank Group's wider efforts to improve access to energy. Lighting Africa is helping mobilize the private sector to build sustainable markets to provide 2.5 million people with safe, affordable, and modern off-grid lighting by 2012. The longer-term goal is to eliminate market barriers for the private sector to reach 250 million people in Africa without electricity, and using fuel based lighting, by 2030. Improved lighting provides significant socio-economic, health and environmental benefits such as new income generation opportunities for small businesses. Lighting Africa is a key element of the global Solar and LED Energy Access (SLED) program, an initiative of the Clean Energy Ministerial.

For more information, please visit <http://www.lightingafrica.org>

Lighting Africa is implemented in partnership with: The Africa Renewable Energy and Access Grants Program (AFREA) • The Asia Sustainable and Alternative Energy Program (ASTAE) • The Energy Sector Management Assistance Program (ESMAP) • The Global Environment Facility (GEF) • The Good Energies Inc. • Italy • Luxembourg • The Netherlands • Norway • The Public-Private Infrastructure Advisory Facility (PPIAF) • The Renewable Energy and Energy Efficiency Partnership (REEEP) • The United States.

NEW RESOURCES

Lighting Africa releases two new Briefing Notes

Lighting Africa has released two new technical briefing notes: the first one, on **Lighting Efficiency and Product Design Optimization**, discusses the lighting product design process from an energy and efficiency perspective.

It is intended to help manufacturers design efficient, high performance products and avoid the false choice between good performance and low product cost.

The second briefing note provides guidance for **Interpreting the Information on a Standard Specifications Sheet**.

Lighting Africa's standard specification sheets provide third-party verification of quality and performance for off-grid lighting products that have been tested according to the Lighting Africa Quality Test Method (LA-QTM). This briefing note explains what to make of the data on a standardized specification sheet.

Download the **Briefing Notes**:

<http://www.lightingafrica.org/resources/briefing-notes.html>

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