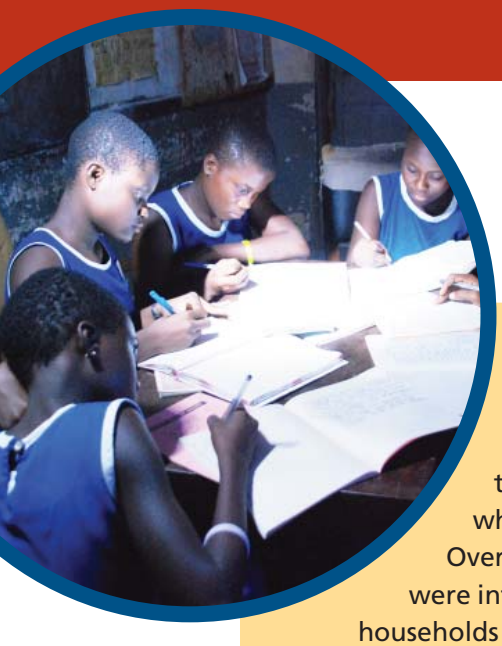
IMPACT STORIES



PPIAF Promotes the Development of Modern Off-Grid Lighting Devices in Africa

As a part of the joint World Bank/International Finance Corporation (IFC) Lighting Africa initiative, PPIAF co-funded the market-based delivery of off-grid lighting services and products in Sub-Saharan Africa in 2008, promoting the development and commercialization of innovative and efficient lighting technologies. In Rwanda, this support translated into the implementation of a modular lighting system by which even the poorest Africans could purchase individual lighting units over time. Over an 18-month implementation period, new innovative modular lighting products were introduced to 32 districts and provided 8,000 light-emitting diode (LED) lights to rural households and businesses, benefitting over 40,000 people. Sales of the modular LED lights are currently growing by 20% a month, and lessons learned from this project have contributed to increasing awareness of the modern off-grid lighting sector and emerging successful business models that Lighting Africa can share with new enterprises.

Today in Sub-Saharan Africa, an estimated 10% to 30% of household incomes is spent on lighting needs. This represents a $10 to $17 billion annual market dominated by kerosene lamps and other low-quality fuel-based lighting products that are costly, inefficient, polluting, and often hazardous. For the poorest Africans, lighting is often the most expensive of all energy uses. But efficient lighting technologies—products using the latest LED, florescent, human-cranking, and solar technologies—now make it possible to offer clean, efficient, and reliable energy services to consumers at prices that are comparable to typical expenditures for kerosene lamps.

The joint World Bank/IFC Lighting Africa initiative, launched in September 2007, encourages the use of these efficient technologies to meet the lighting demands of populations in Sub-Saharan Africa. Specifically, its goal is to mobilize and support the private sector in supplying affordable, clean, and safe lighting to 2.5 million people by facilitating the sale of 500,000 lighting units by 2012. At the same time, Lighting Africa seeks to create a sustainable, commercial platform that will realize its goal of providing 250 million people with modern off-grid lighting products by 2030. This platform provides an avenue for social, health, and economic development, especially for households and small businesses that will realize significant cost savings and increases in productivity.

PPIAF SUPPORT

As part of this initiative, the Public-Private Infrastructure Advisory Facility (PPIAF) co-funded the market-based delivery of off-grid lighting services and products in Sub-Saharan Africa in 2008. Because the market was in its nascent phase, there was little knowledge of modern off-grid lighting products, delivery models, and access to financing. Consequently, PPIAF support aimed to increase awareness and expand knowledge of efficient lighting technologies that can be delivered by the private sector to reach rural households and businesses throughout Sub-Saharan Africa. In particular, PPIAF co-financed the Lighting Africa Development Marketplace (LADM) grant competition, held in Ghana, which selected 16 projects from 11 countries across Sub-Saharan Africa for implementation, providing each project with up to $200,000. PPIAF financed the direct implementation of five of these winning projects, covering a diverse range of original initiatives: Recharging Fees for Lamps Can Buy Hours of Solar Light (Uganda); Lights for

Life in Sub-Saharan Africa (Rwanda, Uganda, and Kenya); One Child One Solar Light (Ghana); Lighting the Way (Zambia); and Family Pedal Power and Lighting Project—East Africa (Tanzania).

One of these projects, "Providing Affordable Home and Business Lighting for Africa with Solar and Light Emitting Diode (LED) Technology," in Rwanda was implemented in Rwanda, where fewer than 2% of the 8.4 million people, who live mostly in rural areas, have access to lighting after dark. Until then, the market for off-grid lighting in Rwanda was dominated by kerosene lamps. Modern off-grid lighting products were difficult to find, and only about 10% of the country was electrified. This project set out to deliver a new modular lighting system that combined an efficient LED lamp with an innovative solar charging film. This modular approach allows users to buy individual lighting units gradually, depending on their capacity to pay. The lighting unit also serves as a mobile phone and battery charger, as well as a source of energy for a radio, an added value to users, since despite scant access to electricity, about one-third of households have at least one mobile phone. This multiple functionality also allows for product deployment through well-established mobile phone channels, developing a sales distribution network comprised of well-organized telecommunication resellers.

OUTCOMES

In Rwanda, a framework to market and sensitize consumers to the Lights for Life in Sub-Saharan Africa project was developed, which included public education and demonstration events in all of the country's provinces. The project trained 148 distributors in all but three of the country districts in modern off-grid lighting sales. Adding LED lights to the existing cell phone business lines has made microenterprises financially stronger and more sustainable. Building up awareness and capacity has helped the program leverage co-financing and quickly develop sales, and the project has also built a substantial customer database.

DONOR COORDINATION

PPIAF's contribution helped mobilize financial support from the private sector as well as other bilateral and multilateral sources. The LADM competition received over $3 million in contributions from PPIAF and other donors, including the Africa Renewable Energy and Access Grants Program (AFREA), the Global Environment Facility (GEF), Good Energies Foundation, Renewable Energy and Energy Efficiency Partnership, and the World Bank.

IMPACTS

As a result of the Lights for Life in Sub-Saharan Africa project in Rwanda, over an 18-month implementation period, modular lighting products were introduced to 32 districts and provided 8,000 LED lights to rural households and businesses, reaching over 40,000 people. Anecdotal evidence confirms that improved lighting is allowing children to study longer hours and is resulting in productivity improvements in small businesses, as, for example, kiosks can now remain open in the evening.

Furthermore, the project's modular approach allows each LED light purchased to displace kerosene consumption. Consequently, users are able to save money that can then be used to buy more lights or add complementary features like cell phone or radio charging, creating a virtuous cycle of monetary savings and improved energy services. Sales of modular LED lights are currently growing by 20% a month.

Additionally, a marketing campaign using road shows, radio campaigns, and other channels has helped spread awareness of the benefits of modern off-grid lighting products in Rwanda. The project is likely to be sustained and scaled-up thanks to a successful business model based on modular purchases of lighting services, the growing awareness of the benefits of clean, modern lighting, and the knowledge and capacity of trained local distributors. Lessons learned from this project in Rwanda and from the other 15 selected in the LADM grant competition include a wealth of knowledge on the modern off-grid lighting sector and emerging successful business models that Lighting Africa now can share with new enterprises willing to enter into this market.

RELATED PPIAF ACTIVITIES IN AFRICA

- 2005: Regional Power Initiative **$74,900**
- 2007: Expanding the Provision of Lighting Services to the Poor, **$1,000,000**
- 2009: Compact Fluorescent Lamp (CFL) Waste Management, **$170,000**
- 2008: Private Investors Meeting in Support of Regional Energy Projects in the Southern Africa Region, **$288,600**
- 2010: Lighting Africa Policy Issues, **$350,000**

Learn more about Lighting Africa at http://www.lightingafrica.org/