



Renewable Energy Jobs & Access

A SERIES OF CASE STUDIES

East Africa ❖ Biomass/Solar

PROJECT PROFILE

The Developing Energy Enterprises Project East Africa (DEEP EA) is a five-year initiative funded by the European Union and the Dutch Ministry of Foreign Affairs (DGIS), supported by several partners including the Global Village Energy Partnership (GVEP).

The project assists the entrepreneurs with the identification of viable energy market opportunities, technology options, and service structures to generate revenue and sustain business. DEEP EA also assists entrepreneurs through training and mentoring to develop business plans, access financing, and enable businesses to grow:

- » Entrepreneurs are taught how to keep basic records for their business, including expenditure, sales, and profit figures. This has helped the entrepreneurs set aside money for savings and reinvestments.
- » The DEEP EA program offers an international loan guarantee fund, enabling entrepreneurs to access loans. Since September 2011, GVEP has worked with six financial institutions across three countries. To date, five DEEP entrepreneurs have received and repaid loans; 47 others are currently being financed.
- » DEEP EA assists entrepreneurs in linking to new markets. Group networking and information sharing sessions bring entrepreneurs, customers, suppliers, and other stakeholders together. Entrepreneurs are able to promote their products to customers, and learn about new products from suppliers.

Challenges remain in that entrepreneurs do not always pay sufficient attention to product standards and quality. They often lack appropriate marketing skills (with regard to recognising market segments and the need for product customisation). There is a strong belief that grant support for their businesses is needed.

JOBS AND TRAINING

By the end of September 2011, there were 885 entrepreneurs that had received DEEP EA support (310 in Kenya, 308 in Uganda, and 267 in Tanzania). Most entrepreneurs are involved in improved cookstoves (ICS), solar technologies, and briquette-making. ICS and solar technologies have received the bulk of donor funding over the years.

In Kenya, ICS ventures are most prevalent (59.4% of all DEEP EA businesses); in Tanzania, solar technologies (51.3%), and in Uganda, briquettes (40.5%).

Altogether, females represent 42% of all entrepreneurs. They work mostly in ICS and briquette-making, but only marginally in solar, battery-charging and biogas ventures. Consequently female entrepreneurs are more involved in renewable energy technologies (RETs) that do not need a high level of capital or mobility.

Employment in the DEEP EA enterprises has fluctuated through the course of the program. From a baseline assessment that showed an average of 1.6 employees per enterprise, the most recent year's data indicate an average of 2.4 employees per enterprise.

ICS liner and briquette production are more labour intensive processes. ICS liner production involves preparing the raw materials, mixing, moulding, and firing. Solar phone-charging, on the other hand, requires relatively little labour.

The total number of employees in the three countries has risen (with the exception of Kenya, where a number of enterprises dropped from the project). Available figures do not distinguish between permanent and casual employees.





PROJECT SNAPSHOT

The Global Village Energy Partnership (GVEP) initiated its Developing Energy Enterprises Project East Africa (DEEP EA) in 2008 to support the development of micro and small-scale energy businesses in Kenya, Uganda, and Tanzania.

- » **Technology**
Improved cookstoves and solar PV
- » **Employment**
885 entrepreneurs have received project support

*The data from the case study was provided by the Global Village Energy Partnership. Population and GDP data are from the World Bank Indicators (<http://data.worldbank.org/indicator/>). Energy access data from United Nations Development Programme and World Health Organization (2009) report, *The Energy Access Situation in Developing Countries: A Review Focusing on the Least Developed Countries and Sub-Saharan Africa*. Photographs were provided by GVEP International.*

** Modern fuels refer to electricity, liquid fuels, and gaseous fuels such as LPG, natural gas and kerosene.*

Enterprises engaged in briquette and ICS liner production have experienced some fluctuations in employment over time, corresponding to highs and lows in orders, seasonal variations, and other factors.

Among ICS producers, Ugandan enterprises have slightly higher average numbers of employees than Tanzania and Kenya. The difference may be due to the availability of locally skilled labour, wage differentials, or differences in markets for the products.

Casual employment plays an important role in these cases. It affords entrepreneurs flexibility (with regard to salary levels, taxes and other dues, etc.). Often, family members are employed by entrepreneurs.

SUPPLY CHAIN

Upstream Linkages

Enterprises that make use of locally sourced materials may be more sustainable than those that depend on remote suppliers. The positive uptake of briquettes in Uganda is encouraged by the relatively low cost of accessing charcoal dust. ICS are produced and sold in all three countries using local resources.

Dissemination of RETs in isolated areas with poor road networks can be challenging. Transportation of products represents additional costs, and entrepreneurs' knowledge of new products may be limited. DEEP EA focuses on a value chain approach to each technology and works with stakeholders along the supply chain. The strengthening of supply chains can help increase an enterprise's chance of survival.

Downstream Benefits

ICS: A complex local value chain means that employment generation spans the whole process from supply of raw materials to production and sales to end users. The GVEP case study profiles one case, Janet Atieno of Keyo Pottery Enterprises in western Kenya, whose business has grown, employing two to six casual employees. She sources the clay and sand for making her liners from local businesses that also benefit from the group's activities.

COUNTRY INFORMATION

Country	Population (Millions)	GDP/ Capita	Electrification Rate (%)			Modern Fuels Access* (%)
			Average	Rural	Urban	
Kenya	40.5	775	15.0	5.0	51.3	17.3
Uganda	33.4	509	9.0	4.0	42.5	0.4
Tanzania	44.8	527	11.5	2.0	39.0	2.8



Briquettes: The supply chain for briquettes is predominantly local. With DEEP EA's help, Jude Kabanda (Uganda) has expanded his sales more than 13-fold since 2008. The acquisition of several briquette machines helped improve the quality and types of briquettes. Four casual employees were added, and another five may be needed. Employees have also started up other enterprises.

Solar Photovoltaic: A third GVEP case study, of Tanzanian solar technician and phone-charging entrepreneur Joseph Robert, also indicates a growing business. Two people were hired, and one or two others are casually employed when the need arises, given fluctuations in sales. Finding staff qualified in installation and maintenance of solar systems is a challenge. The installed solar systems have allowed new phone-charging businesses to be set up in the community, providing additional employment.

The cumulative impact of the DEEP EA project is estimated at more than two million beneficiaries of various RETs, the vast majority of which relate to ICS.

FINANCING

Rural households may not be able to afford large solar home systems; smaller systems may be more suitable, and indeed solar LED lanterns are performing well in the East African market.

Financing represents a major hurdle to the expansion and even the survival of many micro energy enterprises. Most financial institutions are new to the energy sector. Entrepreneurs also lack a good track record of borrowing, some level of collateral and the business plan required to receive financing. GVEP works with entrepreneurs to develop their business plans and has started to link some of the entrepreneurs to financial institutions through a loan guarantee programme.



The Policy Advice and Capacity Building Directorate (PACB) welcomes your comments and feedback at pcb@irena.org.

These local case studies were prepared by IRENA in cooperation with the organisations described. They intend to explore the employment dimension of renewable energy development and deployment in rural areas in the developing world. For a more detailed version of this case study, please see IRENA (2012), *Renewable Energy Jobs and Access*, which is available at:

http://www.irena.org/DocumentDownloads/Publications/Renewable_Energy_Jobs_and_Access.pdf.

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