Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

INTERNATIONAL CLIMATE INITIATIVE (IKI)

SOLARKIOSK – The Energy Gateway to the Base of the Pyramid (BoP)

Globally, billions of people have limited or no access to essential products and services such as energy, clean water, and communications. They are sometimes referred to as the Base of the Pyramid (BoP). But the demand for better energy services and quality products is growing. Many off-grid communities are located in some of the world's fastest developing economies within Africa, Asia and Latin America. The continuous costs of unsustainable energy alternatives significantly reduce local income and have a negative impact on personal health and the environment. This is despite the abundance of sunshine in many BoP regions, which is the key resource for sustainable and decentralized energy solutions.

The German start-up company Solarkiosk AG has pioneered a solar-powered energy and business outlet, along with an inclusive business model that is tailored to the specific needs of BoP communities. Solarkiosk empowers local entrepreneurs as franchise partners for crucial energy services, affordable solar products and quality consumer goods. To date, six locally run subsidiaries within Sub-Saharan Africa have been established and each subsidiary is currently scaling up operations.

This project embraces sustainable economic development with measurable social change and environmental impact. Each Solarkiosk creates local and qualified jobs. It particularly extends those professional opportunities to women, who become empowered by running a business with unique sustainable energy solutions that were previously unavailable. Project-related services and solutions are provided for immediate access to information, education and entertainment, whether it is on finance, hygiene, disease prevention, environmental protection, or social awareness. This project aims to enable a positive long-term socio-economic development at the grass-roots level in each community.

SOLARKIOSK E-HUBB – Technology & Design

The Solarkiosk E-HUBB is a solar technology solution, ranging from 1 to 4 kw/p, which was designed for BoP communities by GRAFT, a renowned group of architects (www.graftlab.com). Going beyond a simple container solution it creates a modular, robust, expandable, and lightweight kit-of-parts unit that is easily transportable even to remote areas. The E-HUBB integrates major appliances and uses its structural layout to provide natural ventilation for comfortable interior temperatures.

It provides a reliable 24/7 energy supply by incorporating smart metering that allows for energy usage, monitoring and efficiency optimization, including the energy stored in its secured battery pack for nighttime operation and power back-up. The expandability of the Solarkiosk E-HUBB enables it to adapt to a wide variety of functions and it can ultimately become the nucleus of a local mini-grid network. Each E-HUBB saves approx. 6,000 t of CO_2 during its commercial life cycle. In 2013, the Solarkiosk E-HUBB technology was awarded, amongst others, the Ecodesign Award by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB).

Climate Partnership to establish local manufacturing in Ghana

The majority of E-HUBBs are currently being manufactured in Europe and imported to Africa. In order to increase local value creation, drive down production costs and thus ensure that E-HUBBs can be scaled in the African markets, Deutsche Investitions- und Entwicklungsgesellschaft mbH (DEG) is supporting Solarkiosk's Ghanaian subsidiary through its "Climate Partnerships with the Private Sector" programme on behalf of BMUB as part of the International Climate Initiative (IKI).

The goal of this particular climate partnership is to establish the local manufacturing of E-HUBBs in Ghana and to build the foundation for scaling up in the West African market. A locally adaptable prototype will be produced in Ghana that fulfills Solarkiosk's high quality requirements. Therefore, local capacity is built among technical personnel in order to test implement and operate all units. Moreover, a marketing and distribution concept will be developed to serve the Ghanaian market at a large scale.

Application possibilities of this or similar project ideas in rural areas, in particular in least developed countries (LDCs) with limited access to electricity, are ample. By providing support for this project, BMUB aims to disseminate the benefits of such projects to be realized with reasonable costs.

THE SOCIAL IMPACTS OF SOLARKIOSK INCLUDE:

Avg. population of SOLARKIOSK community: **7,500**
Avg. number of households per community: **1,500**
Jobs created per each SOLARKIOSK E-HUBB: **4**
Target % of female kiosk employees: **50%**
Solar products sold over one kiosk lifetime: **3,750**
Access to internet & WiFi
Access to digital educational content
Access to solar-powered water purification systems
Access to warranty services for all products sold
Cooling and storage of medication

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