Facilitating rural electrification through solar-powered mini-grids in Uganda

Project implemented from: Sept. 2020 to Dec. 2023
Sector: Renewable energy
Agency: GIZ

Opportunity

Uganda is actively pursuing its 2040 Vision, which aims to achieve 20% of its electricity production from **renewable sources** by 2040. This goal includes a strong emphasis on extending **electricity access** to rural areas, through expanding the current grid as well as offering off-grid solutions.

European companies are investing in Uganda's **solar energy sector**, aligning with both national initiatives and the EU's renewable energy and connectivity goals. The rise of decentralised solar power is creating **employment opportunities**, particularly in rural regions, but emphasises the need for businesses to adopt safer and more productive use of electricity, along with the development of a **skilled workforce** to support the expanding solar industry.

To bridge the existing skills gap, a thorough exploration of sector-specific opportunities took place. This started with engaging in **dialogue** with the European Union Delegation (EUD), which offered insights into potential collaborations and investments. An analysis of ongoing initiatives in mini-grid villages and discussions with key **public** and **private stakeholders** through the Sustainable Business for Uganda (SB4U) platform paved the way for targeted programmes aimed at creating **local jobs** within the sector.

Achievements

The VET Toolbox project in Uganda addresses skills gaps in the solar energy sector, which is poised for substantial investment and job growth in the years ahead, and boosts income and job opportunities in underserved rural areas. More specifically, the action succeeded in:

- **Upskilling trainers** in Vocational Training Institutes (VTIs), enhancing their capabilities to deliver high-quality training programmes.
- Preparing individuals to harness the potential of over 24,000 mini-grids through **training** in **basic Solar Technician** and **advanced Operation and Maintenance courses** at various VTIs. This training model facilitated the participation of female trainees by providing gender-sensitive infrastructure and accommodation in VTIs.
- Providing tailored **business development services** and **basic technical skills** to Micro, Small, and Medium-sized Enterprises (MSMEs) newly connected to mini-grids through Productive Use of Electricity (PUE) training. The training promotes safe and productive electricity use for businesses while equipping participants with essential business skills. It achieves gender inclusivity through female trainers, support for mothers, flexible schedules, and breastfeeding spaces.
- Promoting **public-private dialogue** (PPD) and knowledge-sharing to drive sustainable and inclusive economic development through the Sustainable Business for Uganda (SB4U) PPD platform.

Key results

480 people trained

402 graduates employed

Employment rate of 84%

Partners' contributions

Private partners

- Renewable energy developer **Winch Energy (UK)** built 40 photovoltaic mini-grids across Uganda. They appointed staff and provided a venue to support the PUE training.

- The **Association of Sendea Members Uganda**, a network of local solar companies, offers advice, capacity building, and peer support to solar sector MSMEs. They facilitate VTIs and trainee selection for Solar Technician and Operation & Maintenance training and connect trainees with internship and job opportunities. They also ensure trainee safety by providing protective personal equipment.

Public partners

- The **Ministry of Energy and Mineral Development** actively collaborates to support the project, providing guidance and expertise in the energy and mineral development sector.

- The **Delegation of the European Union to Uganda** kick-started the project in co-creation with GIZ, identifying renewable energy as a priority sector in Uganda.

VET providers

- **AVSI** (Italy) is an NGO that carries out development cooperation and humanitarian aid projects in 33 countries. They support the action by delivering the PUE training to MSMEs newly connected to solar mini-grids in rural Uganda and providing matching grants to help individuals and MSMEs acquire electrical appliances that can fuel business growth.

- Selected VTIs such as the GIZ Renewable Energy Centre at **Nakawa Vocational Training Institute**, **Uganda Technical College - Lira, Daniel Comboni Vocational Institute**, **Ora Technical Institute** and **Northern Uganda Youth Development Centre** deliver the training programmes. They also play an active role in curriculum development and participate in PPDs.

Public-private dialogue structure

- **SB4U** is a structured inclusive **discussion Platform** between **European** and **Uganda public and private sector stakeholders.** It supported the project with PPD, with a focus on private sector participation in VET, female involvement, and curricula development.

WINCH ENERGY

sendea

AVSI
People for development

Key success factors

- The project built upon **pre-existing initiatives** on skills development in the solar energy sector, allowing for **efficient identification** of **employment opportunities** through addressing the skills gaps.
- The project supports the **entire solar energy value chain**, focusing on both the demand and supply side. It supports the use of mini-grids by MSMEs to enable them to expand their business, while also creating opportunities for solar technicians in the installation and maintenance of mini-grids and other photovoltaic equipment and infrastructure.
- **Private sector partners**, such as Winch Energy, benefit from the skills development programme through increased and more efficient mini-grid usage. This leads to reduced reliance on technical assistance, resulting in lowered maintenance costs and higher profits. In addition, improved solar technician training can provide the industry with quality employees.

Upscaling and sustainability

- The SB4U platform has the potential for **sustainable dialogue** between key private and public sector actors. SB4U allows for efficient opportunity-driven skills identification and plays an active role in advocating the needs of the private sector towards the government.
- The Directorate of Industrial Training (DIT) plans to adopt the curriculum on advanced operations and maintenance which promises a **wide-spread delivery** of quality **training** in the sector by partner VTIs.
- The EU is in the process of commissioning the German Development Bank KfW for the GET ACCESS Mini-grid Solar Programme. This **investment** will lead to an increased connection of MSMEs to mini-grids and will create more employment opportunities for solar technicians in the field.
- Additionally, **investments** from the **Ugandan government** address mini-grid solutions (notably in collaboration with private sector partner Winch) and will lead to increased employment opportunities.

Policy recommendations

- Expediting initiatives to **facilitate** the **productive use of electricity** and **train solar technicians**.
- **Formalising** and **expanding** the **work-based learning** approach.

Read more about the project's:
Policy recommendations | Lessons learned

VETToolbox

VET Toolbox is a programme developing opportunity-driven skills development initiatives aligned with investments' needs, supporting the private sector with local job creation. For additional information, please visit www.vettoolbox.eu.

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