UN environment programme

switchafrica GREEN

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Country: Burkina Faso
Sector: Manufacturing
Project: Enabling Burkinabe SMEs to Start Solar Energy Production
Grantee: Stitching Woord En Daad
Partner: Christian Relief and Development Organization (CREDO)

Acknowledgements

The SWITCH Africa Green programme was developed by the European Commission to support African countries in their transition to an inclusive green economy, the main objective being to promote sustainable development. This is based on sustainable consumption and production (SCP) patterns, while generating growth, creating decent jobs and reducing poverty.

This impact sheet on Enabling Burkinabe SMEs to Start Solar Energy Production provides a snapshot of results and achievements of the project under the Green Business Development Component of Phase I (2014-2019) of the SWITCH Africa Green Programme. This component supported micro, small and medium-sized enterprises (MSMEs) to apply and adopt SCP practices in their business operations.

The project was implemented by Stitching Woord En Daad in partnership with Christian Relief and Development Organization (CREDO), with the support of the SWITCH Africa Green National Focal Point Polycarpe Bationo, Ministry of the Environment, Green Economy and Climate Change (MEEVCC) and National Coordinator Albert Compaoré, (MEEVCC), Burkina Faso. The grants were managed by United Nations Office for Project Services (UNOPS) and coordinated by Celia Marquez with support from Mercy Gatobu.

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BACKGROUND

The energy demand has been increasing in Burkina Faso which has an estimated population of 19.7 million people. Only 18.8% of the population has access to electricity from the national grid. Fossil fuel accounts to about 63% of the total energy mix in the country. As many as 90% of the population depends on biomass; mainly fuelwood and charcoal[1] for their energy.

The two major urban areas in Burkina Faso; Ouagadougou and Bobo Dioulasso have limited supply of electricity with an average connection of 20%. Additionally, the country has an annual consumption of 1.32 billion kWh of energy. In the rural areas, most of the energy consumed is biomass-based since less than 5% of the rural population have access to electricity [2]. This has resulted to a high cost and unreliable supply of energy which has a negative impact on productivity of enterprises in the country.

Solar energy is a sustainable alternative to fuel-based electricity production due to availability, lower cost and zero carbon emissions. The uptake of solar energy in Burkina Faso is constrained by limited awareness among consumers, high investment costs and limited access to finance. Businesses, especially the SMEs lack awareness of their energy consumption patterns and knowledge of opportunities for cost reduction by using solar energy.

The project: "Enabling Burkina Faso SMEs to start solar production" was launched in November 2015 to contribute to a green economy based on sustainable power consumption and production patterns for the county's SMEs operating in the manufacturing and tourism sectors. The project provided a complete overview of the many forms of solar energy solutions in the market for key stakeholders.

OBJECTIVES

The main objective of the project was to demonstrate the technical, economic and financial viability of investing in solar energy among MSMEs to enhance their competitiveness and sustainability of their businesses.

Specific objectives of the project were to:

- Improve the profitability of SMEs from the use of solar energy and lower the risks on investments, creating high quality and practical technical training model for the technicians and service providers.
- Provide a detailed analysis of the SMEs energy consumption patterns and opportunities for cost reduction measures through the adoption of solar energy production.
- Introduce a policy framework and showcase demonstrations the technical, economic and financial viability of investing in solar electricity use among SMEs.

1 https://wedocs.unep.org/bitstream/handle/20.500.11822/20481/Energy_profile_Burkina.pdf?sequence=1&isAllowed=y

2 https://energypedia.info/wiki/Burkina_Faso_Energy_Situation

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BENEFICIARIES

Through the project, 180 SMEs were trained on the installation of photovoltaic solar systems and the use of solar energy in Burkina Faso particularly in Bobo Dioulasso and Ouagadougou.

OUTPUTS

Improved stakeholder participation in green economy policy development

Policy dialogue on net metering in Burkina Faso

CREDO organized an advocacy workshop on renewable energy to discuss the Electricity Law N.014-2017/AN in Burkina-Faso enacted in 2017, which removes market segmentation and the single-buyer model, liberalizes production and distribution, and adopt provisions relating to renewable energy and energy efficiency. Key stakeholders participated in the workshop, including the Ministry of Energy. Discussions and recommendations were made on the most effective mechanism to implement net metering as provided for in the law.

Improved capacities of business development services to promote SCP practices by MSMEs

MSMEs trained on technical skills in installation of solar systems

With support from the project, 20 electrical professionals were trained in insulation and maintenance of photovoltaic systems. The small businesses were also trained on mounting the PV systems, cabling and other electrical accessories needed to set up a working solar system. A network of solar energy professionals was established to ensure continuity of provision of solar installation and maintenance services.

The grantee visited over 32 welding workshops and conducted assessments of their energy consumption patterns. The capacity of the small-scale business owners was developed to take up the use of clean energy and implement energy efficiency measures in their respective production processes.

Increased networking among green businesses

Networking events organised

A technical team from the Ministry of Energy visited Morocco to study and learn the implementation of their net-metering and feed-in tariff model. From the lessons learned, the Ministry of Energy developed a framework for net-metring in Burkina Faso.

Through Switch Africa Green Programme, the beneficiaries of the program participated in the SWITCH Africa Green Regional Networking Forum in Uganda (2016) and in Burkina Faso (2018) where they exhibited their products and interacted with other beneficiaries of the Programme.

Improved capacities of workers in green sectors

Training manuals developed

Through the project, 2 training manuals were developed.

- Training manual on Solar Packages Design containing guidelines on installation of different types of solar systems such as solar heating and cooling systems.
- Manual on general information on renewable energy which contains procedures for in installation and maintenance of solar photovoltaic systems.

Improved awareness of consumers on renewable energy

Awareness raising campaigns to promote uptake of solar energy

Awareness raising material promoting solar energy were developed and disseminated. The material developed included demo packages, 200 flyers and booklets and 100 t-shirts. The awareness raising material was used to sensitize the SMEs and community members on the benefits of solar energy production and use.

Improved capacities of green businesses to develop bankable projects

MSMEs capacity developed to calculate the cost-benefit of solar energy

Two calculation models were developed: a techno-financial calculation model of different solar systems and a tailor-made cost-benefit calculation model. The models enabled the estimation of cost-benefit of using solar energy. Project beneficiaries were advised on alternative mechanisms of access to credit from various financial institutions.

Mobilising MSMEs involved in solar energy production to access financing: Through the network of solar energy professionals, MSMEs involved in solar energy production were linked with various Micro Finance Institutions (MFI's) in Burkina Faso in efforts to promote sustainable investments in the sector.

OUTCOMES

Uptake of SCP practices by MSMEs

Installation and monitoring performance of photovoltaic systems

More than 134 photovoltaic systems were installed by the beneficiaries of the technical training conducted on installation of solar systems.

Through Switch Africa Green Programme, the beneficiaries of the program participated in the SWITCH Africa Green Regional Networking Forum in Uganda (2016) and in Burkina Faso (2018) where they exhibited their products and interacted with other beneficiaries of the Programme.

In addition, the project supported installation of monitoring systems that recorded the performance of the solar systems. From the records, it was possible to determine the level of savings made in reduced electricity bills following installation of the solar systems. The data collected also enabled estimation of energy yielded from other PV systems in the same region. Baraka Complex School, one of the project's MSME implemented and installed solar PV systems of 10.25 kWh and trained the students on the benefits of renewable energy.

Improved business performance of MSMEs supported

Savings generated from improved energy efficiency and uptake of solar energy

Following the uptake of solar energy use, there was a 38 per cent reduction in amount of money spent on electricity bills. The amount spent by the MSMEs on paying monthly electricity bills reduced from an initial USD 1,397.16 to USD 873.23 by the end of the project. One of the

MSMEs, Baraka High School recorded an annual savings of USD 6,287.22 in electricity bills.

Improved access to finance for green MSMEs

Access to financing Renewable energy projects

The 'Woord en Daad Renewable Energy Fund' was set up and through the Fund, about USD 11,200 was mobilized to finance various SMEs to implement installation of solar energy systems in Burkina Faso.

The Sociéteé Générale du Burkina Faso (SGBF) was the pioneer in offering a dedicated loan to renewable energy projects. The 'Sunref program', funded by the Agence Française de Development (AFD), supported capacity building of actors in the financial sector and provides sound technical assistance to evaluate potential investment project internally for decision making.

IMPACTS

Environmental impacts

Clean energy production:
The PV production systems installed produced clean energy. Community members also reduced their consumption of electricity from the grid and adopted use of renewable energy.

Substitution of diesel generators with solar energy: The MSMEs installed energy management systems that acted as backup systems. The backup systems combined with the photovoltaic systems enabled the whole system to produce and consume clean energy during power shortages, this reduced the use of diesel which was previously being used to power back-up generators.

Economic impacts

Savings generated from improved energy efficiency and uptake of solar energy

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Social impacts

Creation of employment

A total of 44 jobs were created with 19 being taken up by the youth who started their own small businesses. The project also built the capacity of 14 employees from various highs schools in Bobo-Dioulasso on solar power systems. In addition, 30 employees in the MSMEs were trained to create solar products tailored to meet their needs of running small businesses.

Impact on youth and women

Through the project, 31 male and 8 female workers greatly benefited and acquired skills in the use of solar energy to run their small businesses uninterrupted even with disruption of power supply from the national grid.

LESSONS LEARNED

- Financing is needed by the MSMEs to promote the uptake of sustainable energy. The project established the Renewable Energy Fund (REF) through which at least 14 solar panels were installed.
- Peer to peer learning facilitated dissemination of information on renewable energy to a wider population than the project beneficiaries, where the youth who were trained could in turn train other youth in their community.
- MSMEs are more ready to make decisions to implement SCP practices based on evidence of the savings made as seen where metering systems were installed in Baraka Complex School to help decide whether the PV system could be used as backup during power cuts or as direct supplier to the national grid.
- The program was innovative as it integrated the element of making financing accessible to support implementation of the technical skills acquired on solar power systems installation.

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“I went from a total annual installation of 1224 kW to more than 1600 kW per year. This inevitably led to the promotion and consumption of sustainable production methods in our community and has encouraged us to switch to cleaner production and consumption measures to run our day-to-day enterprises.”

A member of the Atelier Technique Général et Formation (A.T.G.F) in Bobo Dioulasso.

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