german cooperation
DEUTSCHE ZUSAMMENARBEIT

Implemented by

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

GRÜNE BÜRGERENERGIE
(GREEN PEOPLE'S ENERGY)
SMALL PROJECTS FUND (SPF)

CAPACITY DEVELOPMENT

INSTALLATION

Agrivoltaics for Sustainable Development

SUMMARY

Country	Benin
Implementer	Centre Regional Songhaï
Co-implementer	Electriciens sans frontières (ESF)
Target groups	Farmers
Duration	06/2022 – 07/2023
Type of energy use	Electrification

CHALLENGE

Agriculture is very important for the economy in Benin. Around two thirds of the population earn their living from this sector, and it provides 80 % of the country's export goods. Despite its significance, the development of the agricultural sector is subject to numerous challenges. One of these is the lack of reliable electricity, which leads to the continued prevalence of diesel generators in many agribusinesses. Another challenge are the effects of climate change, which are also increasingly felt among farmers. These include a decrease in off-season crops due to unfavourable climatic conditions or irrigation problems due to limited water availability.

IMPACT LOGIC

Centre Songhaï is a training institution promoting agricultural entrepreneurship and sustainable farming practices in West Africa. ESF is a voluntary organisation supporting sustainable access to electricity and water worldwide. For this project, both organisations combine their individual expertise in agricultural practices and renewable energy technologies to design and install two dual-use PV systems (agrivoltaics). The aim of the project is to showcase the benefits and economic potential to farmers.

The first system, comprised of two distinct solar PV layouts (15 kWp each), is installed at the premises of Centre Songhai in Porto-Novo. It is used to experiment with different crops and serves as a demonstration site for the thousands of visitors that the centre receives every year. A second system (10 kWp) is installed at one of Songhaï's flagship farms in Agbangnizoun, in Benin's Zou region. Throughout the project, the implementing organisations collect data to determine the conditions for replication and scale-up.

The potentials of the approach are
(1) to decrease competition around arable land;
(2) to lower the water demand for cultivation of crops by providing shade and powering efficient solar irrigation systems;
(3) to decrease the dependence on fossil fuels and support energy autonomy; and
(4) to increase agricultural productivity and thereby income.

INNOVATIVE PROJECT ELEMENTS

The two agrivolatics systems installed in the course of this project are among the first in Benin and therefore display a strong pilot character. With some experience, agrivoltaics creates the potential of using one piece of land twice – for the production of renewable electricity as well as for agricultural use. Centre Songhaï, with its network of 5,200 farmers and numerous apprentices each year, ensures that the knowledge gained on this technology reaches as many people as possible. The potential of replication and further dissemination of agrivoltaics in the region is high.

FURTHER INFORMATION

www.gruene-buergerenergie.org

Published by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
Registered offices Bonn and Eschborn, Germany

Green People's Energy
Dag-Hammarskjöld-Weg 1 – 5, 65760 Eschborn
T +49 6196 79-0
https://www.giz.de/de/weltweit/77417.html

As at May 2023

Text GOPA Worldwide Consultants GmbH, Arepo GmbH
Design/Layout Atelier Löwentor, Darmstadt, Germany

On behalf of the
German Federal Ministry for Economic Cooperation and Development (BMZ)