



Country: South Africa
Sector: Agriculture
Project: Management of Sustainable Energy Production from Integrated Waste Management and Agricultural Processing Systems
Grantee: Renewable Energy and Energy Efficiency Partnership (REEEP)
Partner: South African National Energy Development Institute (SANEDI)

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 Management of Sustainable Energy Production from Integrated Waste Management and Agricultural Processing Systems 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 Renewable Energy and Energy Efficiency Partnership (REEEP) in partnership with South African National Energy Development Institute (SANEDI) with the support of the SWITCH Africa Green National Focal Point Jenitha Badul, Department of Environmental Affairs (DEA) and National Coordinator Wakhile Mkhonza, United Nations Development Programme (UNDP), South Africa. The grants were managed by United Nations Office for Project Services (UNOPS) and coordinated by Celia Marquez with support from Mercy Gatobu.

Supervision and coordination for development of the impact sheet was done by Rhoda Wachira and Patrick Mwesigye and programme support was provided by Carolyn Kilel and Sylvia Munuhe, Africa Office, United Nations Environment Programme (UNEP).

The impact sheet was compiled by UNEP consultants, Sheila Karue and Mercy Mumo. Editing, layout and design was coordinated by Communications Division, UNEP.

UNEP is grateful for the financial support provided by the European Union (EU) for implementation of the SWITCH Africa Green Programme.



BACKGROUND

South Africa is the tenth largest oil producer in Africa with a daily output of 160,000 barrels and it caters for over 70 per cent of the country's primary energy needs. However, renewable energy systems are under-developed and unable to meet the populations' demand for clean energy. The country has sufficient resources to tap into clean energy technologies like solar-powered pumping and irrigation systems, small hydro-powered agri-food processors and waste-to-energy systems that are already cost-effective in many low-income markets.

In 2015, about 17.2 per cent of South Africa's energy consumption was from renewable sources consisting of wind, solar, biomass and geothermal. It is projected that the country will generate an estimate of 18.2 gigawatts (GW) of energy by 2030.

The project: 'Management of Sustainable Energy Production from Integrated Waste Management and Agricultural Processing Systems' engaged

over 150 communities to promote the adoption of clean energy technologies. A total of 124 MSMEs in the agri-food and clean energy sector switched to sustainable consumption practices such as: installation of photovoltaic (PV) systems, use of organic manure and use of improved cook stoves which are more efficient.

The Renewable Energy and Energy Efficiency Partnership (REEEP) and the South African National Energy Development Institute (SANEDI) supported South African MSMEs and eco-

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entrepreneurs in sustainable energy production. The project aimed to support the country's transition towards a green economy focusing on reducing the communities' over-reliance on fossil fuels as a source of energy.

OBJECTIVES

The main purpose of the project was to promote uptake of renewable energy technologies and energy conservation along the agricultural value chains in South Africa.

The project also aimed to:

- Encourage the growth of eco-entrepreneurs in the agricultural sector and to develop new sustainable energy models such as converting waste-to-energy, that are cost-efficient.
- Aid the community in understanding how renewable energy is linked to sustainable energy consumption and production.



BENEFICIARIES

At the onset, the project had targeted to engage 60 MSMEs and at the time of closing the project, 126 MSMEs had been engaged. The project supported 84 MSMEs in the agri-food sector and 42 in clean energy production. Majority of the beneficiaries were female (56%) whose average age was 39 years.

OUTPUTS

Improved stakeholder participation in green economy policy development

Policy briefs developed

REEP and SANEDI supported the development of two policy briefs as follows:

- Finance in Agriculture which provides a summary of the policy issues that need to be addressed to enable affordable financing for MSMEs engaged in sustainable agriculture.

- Energy in Agriculture which provides policy recommendations on how to promote the use of agricultural waste as a source of clean energy.

Increased networking among green businesses

Networking events organised

A total of 9 networking events were organised and held through workshops and seminars, with over 25 participants attending. The project supported the establishment of the platform on Energy in Agriculture and over 40 women participated in the launch.

Project beneficiaries showcased their results during various conferences that brought together stakeholders and national governments. Information was disseminated using visual materials including banners, brochures and flyers, as well as face to face interactions with different stakeholders. The project made use of social media to raise awareness about their activities and achievements as well. The project also created an information platform through social media pages like Facebook and Twitter where they shared stories and posts enhancing the adoption of renewable energy sources.

The beneficiaries attended the Ministerial Energy Indaba Conference held in Johannesburg in 2017 whose focus was on the role of the energy sector in stimulating economic growth, development and job creation especially in rural areas. The President of the Republic of South Africa, H.E. Jacob Zuma, as well as the South African Minister of Energy H.E. David Mahlobo were in attendance.

Ninety-three (93) people participated in the Sustainable Energy Consumption and Production (SECP) training held in the Free State Province in 2016. Participants comprised 47 emerging farmers, 20 commercial farmers, 15 government representatives and 11 from non-government organizations and private businesses.

Improved capacities of workers in green sectors

Training on renewable energy

The capacity of farmers in the Free State Province was developed through training on installation of biogas systems, installation of solar PV systems for water pumps, production of organic fertilizer from manure and commercialization and use of improved cook stoves as a substitute for the traditional stoves. The farmers trained were involved in poultry rearing, horticulture and livestock keeping. The trainings enabled MSMEs to improve their energy consumption rates across agricultural value chains and improved waste utilization.

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In addition, 150 community members were trained to shift to the use of renewable and clean energy sources like biomass, solar and micro-hydro energy.

OUTCOMES

Uptake of SCP practices by MSMEs

Adoption of SCP practices

At the close of the project, 84 MSMEs were implementing SCP practices and 65 MSMEs planned to adopt SCP practices.

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The SCP practices adopted include use of solar energy, installation of energy efficient lighting, bioenergy, hydro energy and cleaner energy technologies. In promoting sustainable agriculture, MSMEs took up the use of organic fertilizers and pesticides, reduced or zero tillage and reliance on biofuels which led to reduced levels of GHG emissions.

IMPACTS

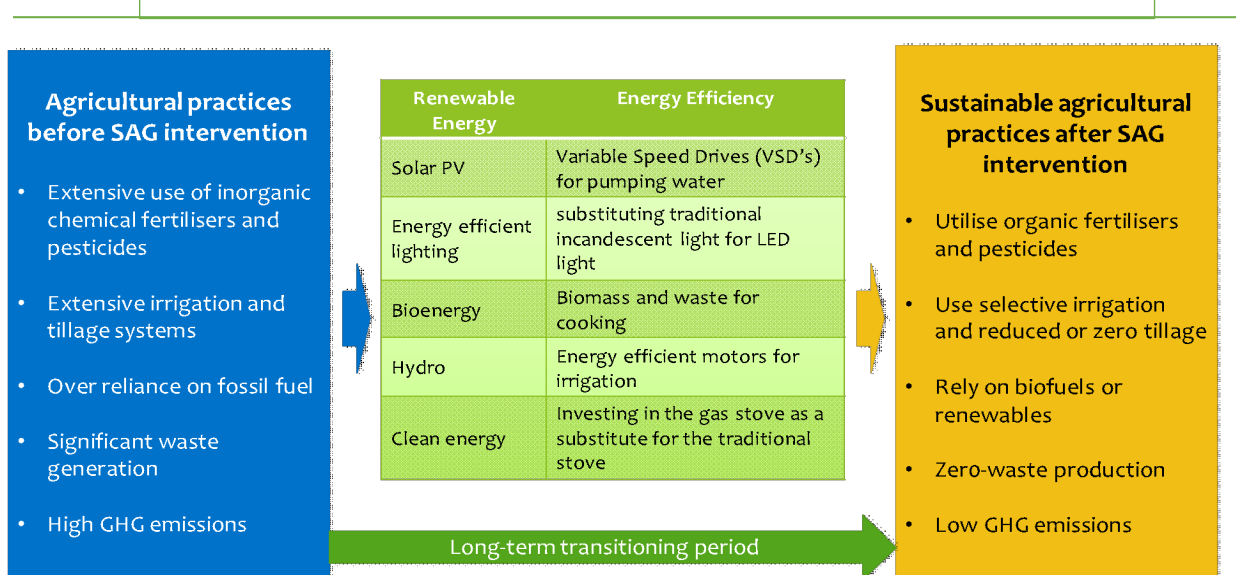
Environmental impacts

CO2 emissions avoided

The carbon footprint of the project of about 70 tonnes of carbon dioxide equivalent (CO2e), was offset by the purchase of 70 Renewable Energy Certificates. This translates to the equivalent of 70 megawatt hours (MWh). REEEP and SANEDI were awarded a Trust Seal Certificate confirming that the greenhouse gas emissions related to the Project were offset.

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Green Business Practices and Sustainable Solutions





From the uptake of energy efficient practices and renewable energy technologies by the MSMEs, 40.3 tons of CO2 emissions per annum were avoided.

Economic impacts

About 20 per cent of the MSMEs reported that they had made energy savings of 192 MWh per annum and annual savings in production costs amounting to USD18,365. The MSMEs also created additional employment opportunities for members of the community.

LESSONS LEARNED

- Collaboration with relevant government departments such as the Department of Rural Development and Land Affairs and their respective provincial departments optimises uptake of sustainable energy and enhancement of capacity development of MSMEs.

- Without enabling policies, micro and small enterprises and subsistence farmers would be hindered from adopting the use sustainable energy technologies.
- Lack of specialized skills hinders farmers to adopt SCP practices such as energy and water in the agriculture sector. This calls for development of practical courses to impart technical skills needed such as diploma, certificate and on-farm training and reskilling.



“SWITCH Africa Green showed me the opportunities that exist in the industry that I was not aware of. I started my consulting business teaching other farmers on efficient use of resources so as to maximise their profits. The business has grown significantly since then,”

Lengau Mothiane, a business man, Freestate, South Africa



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