



**Country:** Ghana  
**Sector:** Integrated waste management  
**Project:** Promoting Biogas Technologies in Ghana  
**Grantee:** Ghana National Cleaner Production Centre

## 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 *Promoting Biogas Technologies in Ghana* 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 the Ghana National Cleaner Production Centre (GNPCPC) with Project Manager being Daniel Digber and support from the SWITCH Africa Green National Focal Point Lambert Faabeluon – Environmental Protection Agency (EPA), Ghana; GNPCPC and National Coordinator Kingsley Bekoe Ansa, United Nations Development Programme (UNDP), Ghana. 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, UNEP.

The impact sheet was compiled by Sheila Karue consultant, UNEP. Editing, layout and design was coordinated by Communication Division, UNEP.

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## Background

The SWITCH Africa Green programme supported implementation of the project on *Promoting Biogas Technologies in Ghana* by the GNCPC within the Greater Accra Metropolitan Area (GAMA). The project created the opportunity to develop capacity within GAMA for the adoption of planning and use of biogas technology to manage domestic faecal sludge. This would also create an opportunity to generate income and move towards clean and efficient domestic energy. The construction of biogas plants in schools would serve as a way of eliminating physical handling of faecal sludge and consequently provide environmentally sound faecal sludge management for the other 16 metropolitan, municipal and district assemblies (MMDAs) in the GAMA

About 95 per cent of the residents in Ghana depend on on-site treatment systems for their sanitation needs. The waste accumulated in septic tanks has to be emptied when full. The

challenge lies in disposing of this waste, which poses a risk to the environment and creates health hazards to the community. The project aimed at addressing these challenges through the promotion of biogas technologies. Prior to implementing the project, data was collected on household and public schools' waste management practices. Alongside this a review of the legal framework on renewable energy and a baseline assessment of existing biogas plants was conducted.

## Beneficiaries

Through the project 101 biogas artisans were equipped with skills on adopting SCP practices in their particular trade.

## Objectives

- Promote sustainable management of faecal sludge and create income for artisans
- Train artisans in the construction of biogas plants

- Disseminate information on biogas technologies and share success stories
- Establish partnerships between MMDAs and the private sector.

## Outputs

- **Institutional coordination mechanisms to promote green business development established**

Through the project, the Biogas Association of Ghana was established in 2017 as a not-for-profit organization aimed at promoting biogas technology in Ghana and Africa and has registered more than 19 corporate organizations and 34 individuals.

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- **Increased networking among green businesses**

The project team engaged Pioneer Food Cannery Ltd, a manufacturing company that produces various types of canned fish. The company generates fish waste and has the potential to create large quantities of biogas, thus converting their waste treatment plant into a biogas plant.

- **Improved capacities of workers in green sectors**

- A total of 101 artisans were trained on the construction of biodigesters. Enhanced capacity in biogas technologies among local artisans enables the uptake of biogas.

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**A biogas training manual was developed and accredited.**

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Institute (NVTI), Biogas Technologies Africa Limited and GNCPC signed an agreement to adopt the manual in the NVTI institutions to train students in the construction of biogas plants.

- **Innovation to promote green business development**

The project supported the development of software to calculate the cost of a biogas plant including the bill of quantities. It was developed to demystify the widespread challenge that biogas technology is expensive. It enables the breakdown of all

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calculations and presents the figures in terms of benefits and value, and not just as an expensive undertaking.

- **Biogas plants constructed**

The trainees constructed two demonstration biogas plants located at the GNCPC and the Institute of Environmental Studies (IES) hostel and



converted one septic tank into a biogas digester at the Ashaiman Senior High School with support from their facilitators.

The EPA, as part of its contribution to the project, provided funding for the construction of 10 biogas plants in seven senior high schools within the GAMA.

## Outcomes

- **Contribution to policy framework supporting uptake of biogas technologies**
  - The project provided input to the development of the draft national biogas strategy and eighth national clean cooking policy review - Making Clean Cooking Technologies A National Priority. GNCCPC made a presentation on the topic State of Cooking in Ghana – Realities, Prospects and Challenges during the policy dialogue.

**The project provided input to the development of the draft national biogas strategy and eighth national clean cooking policy review**

**The project team provided technical input into the Ghana Building Code, all applications for building permits are required to include a biogas plant.**

- The project team provided technical input into the Ghana Building Code which was launched by the Vice President of Ghana on 31 October 2018 in Accra. As a result, all applications for building permits are required to include a biogas plant.
- **Improved performance as a result of uptake of biogas technologies**

A variety of benefits resulted from the use of the biogas plants: the plants did not need to be emptied as with septic tanks, sanitation improved

as there is no leakage; more space was made available for gardens, car parks or sitting areas; low maintenance costs and the production of by-products such as clean water for gardening and sludge for farming, as well as gas for cooking and lighting.

**The Biogas Association of Ghana received a grant of USD36,000 from the Business Sector Advocacy Challenge (BUSAC) Fund to promote biogas technology.**

- **Improved access to green funds**

The Biogas Association of Ghana received a grant of USD36,000 from the Business Sector Advocacy Challenge (BUSAC) Fund to promote biogas technology and also create awareness and educate the general public on the benefits of biogas technology.

**The project led to improved organic waste management, through treating waste and wastewater to produce biogas and compost.**

## Impacts

- **Environmental impacts**

The project led to improved organic waste management, through treating waste and wastewater to produce biogas and compost. The promotion of biogas technology resulted in better sanitation and a cleaner environment.



- **Economic impacts**

New opportunities opened up for the workers trained in constructing the biogas plants as a result of new skills gained, leading to an increased income.

There were financial savings for the beneficiaries of the biogas plants, as they no longer had the expense of emptying septic tanks.

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- **Social impacts**

- Through installation of the plants, it was reported that there was a reduction in the incidences of typhoid, cholera and other communicable diseases
- The general public gained a better understanding and acceptance of biogas technology and its associated benefits
- The lifestyle of both artisans and beneficiaries improved due to increased income and better sanitation facilities.

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**Lessons learnt**

- Adoption of green business practices can be facilitated by using technology - for instance the biogas calculator software makes it easier for biogas contractors to provide building estimates to clients.
- Creating an enabling environment through use of policies to promote the uptake of SCP practices for green business development. Ghana's Building Code GS1207: 2018 requires biogas installation for all new buildings and converting existing septic tanks into biogas plants.
- Establishment of the Biogas Association of Ghana through the GNCPC will ensure continued development of biogas technologies through institutional frameworks.
- Annual training

programmes will be rolled out through a collaboration of the NVTI, GNCPC and Biogas Technologies Africa Limited (BTAL). This ensures continuous training for artisans enabling skills development in the construction of biogas plants.



*" Since I started training and constructing biogas plants, I have been able to acquire knowledge and skills in biogas construction.*

*It has given me another stream of income and improved my financial standing.*

*Thank you SWITCH Africa Green for the opportunity".*

**Mr. Ambrose Tsekpo,**  
**Technical Director, Charmass Biogas Engineering.**



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