

# Hybrid Waste to Energy as a Sustainable Solution for Ghana

## FACTSHEET



### BACKGROUND

The lack of waste treatment infrastructure has resulted in the collection of only 18.2% of the 14,000 tons of waste generated daily in Ghana. The remaining 81.8% is dumped indiscriminately in open drains, openly burnt or ends up in open dumpsites with no recourse to treatment. Meanwhile, the organic and plastic component of the waste constitutes about 80% of the total waste generated. The indiscriminate burning of the plastic waste contributes to the emission of CO<sub>2</sub>, polyaromatic hydrocarbons (PAHs) and other harmful gases while the untreated organic fraction decomposes under quasi-anaerobic conditions generating methane gas which is 25 times more harmful than CO<sub>2</sub> in the atmosphere. Aside from these, the indiscriminate dumping of waste into open drains due to lack of infrastructure is a leading course of flooding during heavy rains and a major contributory factor to marine littering and the destruction of the marine ecosystem. Additionally, the attainment of the United Nations Sustainable Development Goals by Ghana hinges on a sound and sustainable environment and the provision of clean and modern sources of energy. Thus, the time to find a comprehensive tailor-made solution to address these challenges is more pressing now than ever before.

The country's quest to find a long-term solution to the menace of solid waste by treating the waste and generating power from the treated waste is the driving force behind this project.

### AIM OF THE PROJECT

The overall aim of the project is to through research and development and capacity building, develop concepts for waste segregation and the conversion of various fractions of municipal solid waste into energy by using hybrid biogas, pyrolysis and solar PV technologies. Additionally, the project also seeks to create business models to successfully replicate and propagate this model in 10 different regions in Ghana. The project team brings one of its kind research and technologies combinations to Ghana in supporting and enhancing the sustainable management of municipal solid waste.

### ABOUT THE PROJECT

The German government through the Federal Ministry of Education and Research signed a 5.8 million euros contract with 4 institutions in Germany and 1 institution in Ghana comprising 3 academic institutions, one research, and development institution and a medium scale industry to design and construct a 400 kW hybrid waste to energy power plant to treat municipal solid waste in Ghana. The completion of the 48-month project will help to ensure the conversion of waste to energy commences in Kumasi and later extended to other parts of the country.

## EXPECTED RESULTS OF THE PROJECT

The project is expected to:

- 01 Improve sanitation by converting the ever-increasing municipal solid waste into energy for productive uses and contribute to sustainable industrial development.
- 02 Train high-level local experts in waste management and waste treatment technologies,
- 03 Transfer proven waste treatment technologies in use in Germany to Ghana.
- 04 Build capacity of local experts to design, construct, and maintain a hybrid waste to energy facility.
- 05 Install a novel hybrid waste to energy treatment facility in Ghana that combines solar PV, biogas, and pyrolysis technologies to treat municipal solid waste and generate power.
- 06 Provide a blueprint for the propagation of 10 additional waste to energy facilities in Ghana
- 07 Contribute to Ghana's climate change mitigation strategy.
- 08 Contribute to the inclusion of renewable energy in Ghana's electricity generation mix

## PROJECT FUNDER



## PROJECT PARTNERS (GHANA AND GERMANY)



### DURATION:

01. 01. 2020 - 31. 12. 2023



### FUNDING AMOUNT:

€5.800.000



### LOCATION OF PROJECT:

Ashanti Region, Ghana

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