



Biogas generation from wastewater, Thailand

This project is engaged with mitigating global warming and local air pollution at a Thai starch plant by capturing methane and generating sustainable energy and social benefits for local communities.

Location



Located in Thailand's northeastern extremity, this project is situated in the Isan region surrounded by hilly landscapes, forests and waterfalls. The regional economy is based on agriculture and due to many factors, particularly the region's aridity, it remains the country's poorest. It takes a day trip from Bangkok to reach the site.

Project



Only a few years ago, the inhabitants of the surrounding villages could smell the open lagoons used for clearing the starch wastewater. Today, not only the local air and water quality has improved significantly, at the same time the starch plant managed to reduce its fossil fuel use.

New jobs have been created, with free annual medical checks for the employees. In addition, the project and the resulting carbon revenues allow for supporting social and educational activities such as scholarships for local student to foster sustainable development.

Technically, the project activity involves the installation of a closed anaerobic wastewater treatment facility (Upflow Anaerobic Sludge Blanket technology) at a starch manufacturing plant with a large output of waste water every day. Before the installation of the project the wastewater in the plant was treated through cascading open lagoons with a retention time of more than a year. The mix of the lagoon size, atmospheric and water temperature, resulted in an anaerobic environment in the ponds. These conditions led to methane generation from the organic content of the wastewater which was steadily released into the atmosphere. Methane is a greenhouse gas 21 times stronger than CO₂.

Now, the captured methane can be used for clean energy production in a burner on the plant site, replacing fossil fuel for heat generation to dry the starch. Thus, the emission reduction project has a double effect, keeping methane from heating up our climate and at the same time avoiding the burning of thousands of tons of fossil fuel per year.



Project achievements



Socio-economic impact:

- Construction, operation and maintenance of the biogas plant generate local employment including both qualified and support staff positions. The company provides free annual health check-ups for their employees.
- The project owner has an annual scholarship program for all local schools in the district, with about 80 students receiving funding.
- The company supports a blood bank and organizes blood donations of employees at a local hospital and health centre.
- On an annual basis, the project owner sponsors the local community child day activities, providing food and snacks and donating toys.
- Thanks to the new closed wastewater treatment system, local air quality has improved and odor nuisance reduced significantly.
- The sludge from the wastewater treatment system can be used as a fertilizer for agriculture and thus is given to local farmers for free.
- Local farmers are allowed to let their cattle graze between the twenty covered lagoons. In addition, grass cut and fruit from the project site are given to local farmers.

Environmental impact:

- The treated water is recycled for use in the plant and thus saves fresh water resources.

Checklist Project 300 136



✓ Additionality and permanence:	according to the rules of the VCS
✓ 3 rd party verified:	by SGS
✓ Transparency:	provided by Markit Environmental Registry
✓ Annual CO ₂ -reduction:	29,000 tCO ₂ e
✓ Social and environmental benefits:	as documented in our database
✓ Marketing material:	high resolution pictures available

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