



Blue Fire energy 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



The wastewater cycle was installed in a starch plant 250 km North-East of Bangkok, in a rural region with mostly agricultural background. Starch production forms the region's main industry.

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 by up to 4700 litres per day. In addition, the project and the resulting carbon revenues generated jobs for locals and support social and educational activities in the community to enable sustainable development.

Technically, the project activity involves the installation of two closed anaerobic wastewater treatment facility (Upflow Anaerobic Sludge Blanket technology) at a starch manufacturing plant with a large output of waste water. 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 CO_2 .

Now, the captured methane can be used for clean energy production in two burners 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:

- 17 new jobs have been created both for the operation of the wastewater cycle.
- New qualified jobs for locals have increased the general income level which benefits all the community.
- The cleaned water from the new wastewater cycle allows for fish farming and irrigation of nearby fields, thus enabling locals to increase their income.
- The plant workers receive training on modern technologies and can increase their knowledge and skills.
- Technology transfer supports the workers' understanding of modern and sustainable applications.

Environmental impact:

- With the now covered lagoons and the UASB reactor in operation, air pollution and strong odour from the wastewater have been reduced significantly.
- All water from the wastewater cycle can be re-used in the plant which reduces water consumption.
- No solid waste is generated but sludge that is given to local farmers as fertilizer.

Checklist Projekt



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✓ 3 rd party verified:	by TÜV Rheinland
✓ Transparency:	provided by the Gold Standard and UNFCCC Registry
✓ Annual CO ₂ -reduction:	50,000 tCO ₂ e
✓ Social and environmental benefits:	as documented in database
✓ Marketing material:	pictures available